The Monthly Review of the AMERICAN ELECTROPLATERS' SOCIETY

CONTENTS

Editorial 7

Logozzo—Chromium Plating Plastic Molds 11

Augsburger—External Heating of Plating Solutions 23

Branch News 32

Here and There 54

The Abstract Section 70

Membership Report 72

Buyer's Guide 76

Branch Directory 79

Index to Advertisers 80

JANUARY 1940

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E L P C O CLEANING COMPOUNDS

The Monthly Review

Published by the AMERICAN ELECTROPLATERS' SOCIETY, Inc.

A Society for the Advancement of the Science of Electroplating

JANUARY 1940

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Editorial

It will be several months before accurate totals of corporate earnings in 1939 are available but enough of them have now been published so that by comparison with former earnings of the same companies, it can be estimated pretty accurately what these totals will show when complete.

Apparently the year 1939 will show that the total of corporate earnings will be somewhere on the level of the years 1927, and 1936. They will probably not reach 1937, but will be around 40% better than 1938. In other words, since the close of the World War, there would be only 1928, 1929, and 1937, which would show better corporate earnings.

Considering that the first half of 1939 was not particularly good in respect to earnings, it goes to prove what volume does to profits. Most of the money was made in the last half of the year, when the volume jumped.

In most businesses there is a very definite minimum of volume, below which they cannot stay in the black regardless of how much corners are cut and expenses trimmed. The fixed charges, which cannot be reduced, eat them up and they lose money no matter what they do.

As volume increases over this minimum there is an area where the concern makes some money, but profits do not increase proportionately with increase of volume. Just why this is so, is hard to explain, but it is a phenomenon with which all intelligent managers are familiar. The explanation is probably a psychological one. As long as money is being lost, everyone is trying to save money in small ways but as the company shifts over into the profit area, the average employee lets down the bars. The manager may kid himself that he has an absolute control over expenditures but actually there are a lot of people entering into the spending of money in most companies. The change of mental attitude on the part of all these people probably accounts for the discrepancy in profits. As volume increases, they loosen up in small ways with the result that the increased volume is counterbalanced by increased expenditures, and is not reflected proportionately in profits.

However, there is a point in every business where a very little additional volume suddenly causes profits to sky-rocket. An intelligent manager tries to find that point and put his volume above it. There are all kinds of expedients for accomplishing this purpose, but advertising is one of the best.

If you did not make a satisfactory profit last year, you had better start to analyze. You cannot reasonably expect the total volume of business to top all-time peaks this year, although there is some chance that it may do so. If it takes a larger volume of total business than we had last year for you to make money, there is something wrong.

1. You are in the wrong business.
2. The business is not being operated efficiently.
3. You are not getting a fair share of the total business.

It may be very soothing to your vanity to damn the administration, or labor unions, or high taxation, or your competitors, but you must not lose sight of the fact that everybody operated under the same set of conditions and the cold facts show that most people made very satisfactory profits.

Maybe you are in the wrong business but if your competitors made money the chances are that the business is all right. If you are not operating efficiently we will do all we can to help you in a technical way, but in the last analysis you will have to work out your own salvation.

However, if you are not getting your share of the total business, we can help. Advertising will assist, and we know of no better way to reach the progressive element in the trade, then through our columns.

This applies not only to the manufacturer and jobber of equipment and supplies for the plater but also to the job plater and the concern which has plated articles to sell.

The job plater needs to tell the world who he is, where he is located, and what he is equipped to do, just as much as the manufacturer of anything else, and advertising is one of the cheapest methods of accomplishing that purpose.

To the manufacturer of plated articles, we can only say that we know of no market disposed to be so friendly to plated articles as the platers themselves, provided they are informed.

On the other hand, if you made a satisfactory profit last year, you want to protect your volume to see that it does not drop below the critical point, even if the unexpected should happen and total volume of business suffer a reduction this year. Advertising is certainly one of the best methods of accomplishing that purpose. In addition, you are in the enviable position of having accumulated funds which can be used to bring about that end.

So you see we have built up a nice case to get you coming or going.

Anyway — advertise.

ORGANIZING THE LANCASTER BRANCH

The growth of the A.E.S. has not been spectacular, its achievements have not been heralded with a blare of trumpets, but there has been a steady advance over the years in membership and accomplishment for which we may well feel proud. Small groups here and there have banded together to increase their knowledge and to help one another in the complex and commonplace problems connected with their jobs. This was the primary purpose of the organization. During the past two decades great changes have taken place in our social and industrial life; like other educational societies we have had to adjust ourselves to meet these changed conditions with the result that we have become one of the most progressive educational bodies in the country in our particular line of activity.

L. A. CRITCHFIELD
New President of Lancaster Branch

Lancaster is not a large city. It has, however, many varied kinds of business such as the manufacture of silk, machine tools, linoleum, bottle stoppers, paper boxes, etc., and is the home of Hamilton watches. The cities and towns around Lancaster, which include Coatesville, Harrisburg, York, Reading, and many small communities, all have manufacturing plants employing many men in the metal finishing field. It was the dream of Leroy Critchfield to bring all these men into the A.E.S. membership by forming a branch in Lancaster, which dream is about to be realized.

On Friday night, January 12, with over fifty men present, preliminary steps were taken to get the new branch started. Stahr Hall, Franklin and Marshall College, was, and through the courtesy of the college will continue to be, the meeting place of the Lancaster Branch members. Mr. Critchfield after a few preliminary remarks stated the purpose of the meeting. He introduced Mr. George Gehling, past supreme president of the A.E.S. Mr. Gehling spoke briefly and very enthusiastically of the benefits he derived from many years of active membership in the Society.

Mr. Joe Underwood, president of Philadelphia Branch was the next speaker. His message was one of encouragement, saying that his only regret was in losing so many good Lancaster members from his own branch, but assuring

them and all prospective members that the Quaker City Branch will watch with keen interest the growth and development of the new branch, promising every co-operation and support from the Philadelphia members.

Mr. Fred Fulforth was then introduced as the first vice-president of the Supreme Society and conveyed the best wishes of the Executive Board for a successful meeting, assuring those present of the supreme officers' interest in the organizing of our 30th branch. Mr. Fulforth spoke of the importance of electing the right men to fill the various offices. Each speaker was well applauded.

The Executive Secretary spoke at length on the various details of organization, many questions were asked. These were answered by the speakers present. A motion was made that a president and secretary pro tem be elected. Mr. Critchfield was unanimously chosen as the logical one to act as president, while Mr. Harry L. Hovis was just as unanimously elected as secretary-treasurer. Mr. Arthur Snow, member of Philadelphia Branch, very graciously presented the newly elected president with a gavel. This act created a lot of applause after which President Critchfield thanked Mr. Snow and the speakers present for their good wishes and their presence at the meeting. It was estimated that the new branch will start with about thirty members, which includes fourteen members of Philadelphia Branch residing in Lancaster and vicinity, and approximately twenty of those present who signified their willingness to join.

The fine spirit of helpfulness on the part of Philadelphia Branch towards the "new baby" was the subject of very favorable comments in connection with the meeting. The next meeting will be held at Stahr Hall, Franklin and Marshall College, Room 112, the second Friday in February. A temporary charter will be presented to the branch at that time by the Supreme Society.

Previous to the meeting a small group consisting of the following, sat down to dinner: K. H. McMillen, Mr. and Mrs. L. A. Critchfield, Mr. and Mrs. Arthur Snow, George Gehling, Eugene Zurbach, Harry L. Hovis, Leroy Beaver, Mr. and Mrs. Jack Dimon, Mr. and Mrs. Fred Fulforth, Joseph Underwood, W. J. R. Kennedy.

New Buffing and Polishing Lathe

A new lathe for buffing and polishing metals has been developed and placed on the market by the Hanson-Van Winkle-Munning Co., Matawan, N. J., manufacturers of electroplating equipment and supplies.

This lathe, named Type MI, is a compactly built unit of rugged construction and designed to eliminate vibration, assure smooth performance and long life. The spindle turns on ball bearings which are of oversize capacity, precision made and precision mounted, lubricated by an oil reservoir; all contributing to long life. The spindle drive is through heavy duty high speed "V" belts and accurately machined sheaves. A sturdy spindle lock is provided. The lathe has a 12" overhang of the spindle to provide work clearance.

The method of changing "V" belts is new and simple. By loosening a few bolts, the change can be quickly made without disturbing spindle bearings or alignment. Any spindle speed within the range of 1800 to 3600 RPM can be secured. Other speeds may be had by changing the motor sheave pulley. "V" belt tension can be adjusted by a hand wheel at the rear.

The motor is continuous duty N.E.M.A. standard, ball bearing equipped and protected by a magnetic starter. Bronze spindle nuts reduce wear on the flat top spindle threads. Spindle flanges are of heavy cast iron, machined all over. Both ends of the spindle are tapped for taper points.

A tray is included for composition and tools. A wrench hook is provided. A start-stop lever is included for starting and stopping of motor by means of a switch operating through the starter. A spindle brake, automotive type, is furnished as part of this equipment to bring to a quick stop to change wheels.

Base dimensions on all sizes are 26" wide x 24" deep. Sizes are 3, 5, 7½ and 10 HP. Weights, from 1265 to 1540 lbs. The lathe is furnished for 220, 440 and 550 volts, 2 or 3 phase, 60 cycle A.C. power circuit; also supplied special for other A. C. or D. C. circuits.

Chromium Plating Plastic Molds

By ARTHUR W. LOGOZZO
Plastics Division, General Electric Co.
Pittsfield, Mass.

WITH the inception of a widespread and diversified use of Plastics came a need for a mold surface that would combine many qualities, namely—hardness, resistance to abrasive wear, protection against corrosion, and a low-coefficient of friction of surface permitting free extraction of molded product from the mold. About ten years ago chromium plating was introduced to the Plastics Industry and supplied the answer in part for this long-sought-after surface.

The plating of molds, however, proceeded slowly chiefly because of the plater's failure to adhere strictly to the fundamentals of electroplating. The low current efficiency of a chrome bath is known to all platers, yet few provisions were made to overcome this difficulty. Consequently, top parts and corners of cavities were built up with plate while deep recesses, the more essential sections of a mold where sticking of compound is most likely to occur, were neglected entirely. This resulted in poor cutting off because of rough heavily plated edges and also a back taper on deep slotted sections thereby preventing a free removal of the piece from the mold.

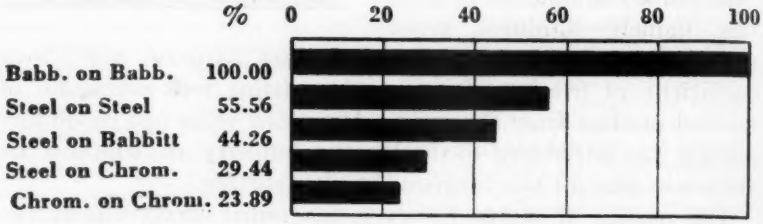
The thickness of plate is another important factor overlooked by the plater. In plating circles two ten-thousandths (.0002) thickness of chromium is considered adequate. This, however, is repudiated by the plastic molder who claims the harsh abrasives used in molding wear through a thin coating too quickly and believes a minimum thickness of one thousandth (.001) provides an excellent wearing surface.

It generally takes two weeks to break in a new unplated mold. A chromium plated mold is broken in to a production line in two or three hours. This reduction in the breaking-in point is due to the low coefficient of friction of surface of the chrome. Figure 1 illustrates this point which is just one of the many advantages of plating molds to be discussed in this paper.

PREPARATION FOR PLATING

The high reproducibility of chromium plating shows up every defect in a mold and consequently more attention has to be given

to the preparation of the surface for plating. Minute surface defects, the appearance of which is aggravated by plating, are reproduced in the molded part. Hence, the elimination of all surface defects is essential for the success of a plated, high-finish producing mold. This can be accomplished only by adhering to



Comparative Static Friction of Surfaces

Fig. 1

the hard and fast rules of filing, stoning, and polishing. A hardness of 58 to 60 on the Rockwell C scale makes a good hard base for a good wear-resisting chrome.

Molds should come to the plater with inserts, pins, etc., removed so as to facilitate the uniformity of deposits. The poor conductivity of a chrome bath makes it difficult enough to obtain this deposit without having a complicated mold assembled before plating, thereby making a tough job that much more trying to the plater. The tool room should work in close connection with the plating room to obtain this co-operation.

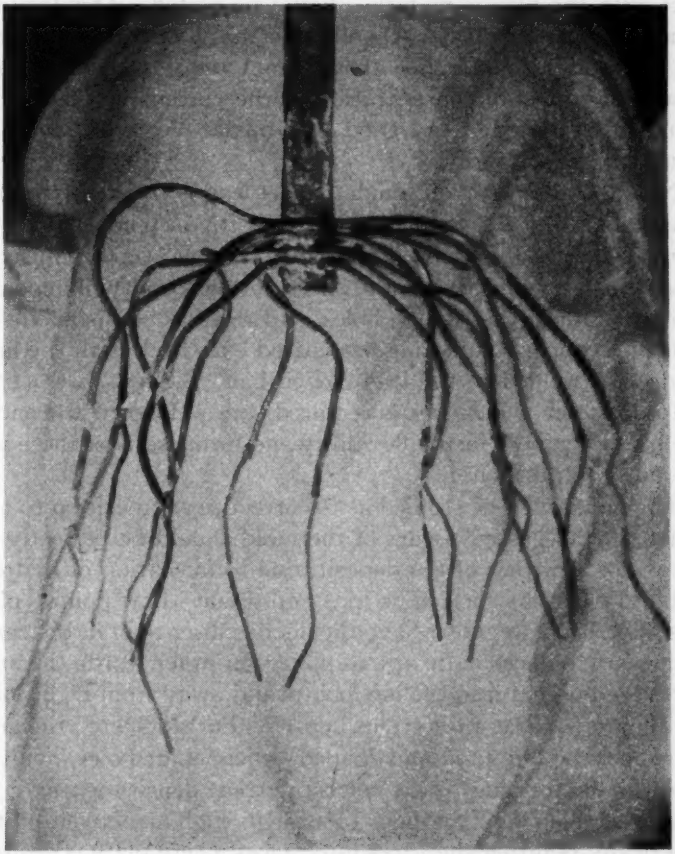
PLATING PROCEDURE

After a mold has been finished in the tool room there exists, more often than not, a slight oxidation of the highly polished molding sections. To offset this condition when the piece enters the plating room the first step should be a degreasing and pickling operation. A muriatic dip works very well as a pickle.

1 part HCl (Muriatic)
2 parts H_2O

The work should then be rinsed in an alkaline solution or soluble oil to prevent re-oxidation. A polishing operation follows

to produce the highest possible lustre so as to provide an excellent base for plating. This polishing is generally done with soft bristle brushes, using a flexible hand polishing machine. The polishing compound consists of aluminum oxide (Al_2O_3) and sperm oil



The "Octopus" anode
Fig. 2

mixed to a paste. After polishing with this paste the work is degreased in an organic solvent—straight gasoline, carbon tetrachloride or naphtha. The work is then blown dry and gone over with dry aluminum oxide powder. In other words a double

polishing operation is employed, one called wet, the other dry. The dry operation produces the lustre.

Next comes the set-up. Each individual part should be studied as to insulation, anodes, current density and thieves or protection for sharp points and corners. Any part of a mold coming in contact with the plastic material should be plated. This facilitates removal of flash or waste, thereby increasing operating efficiency. Sections of the mold shoe that do not require plate should be insulated to insure concentration of the current density on portions to be plated. Any good stop-off lacquer will handle this situation satisfactorily.

Now the all important anode. Sheet lead is commonly used for plain molds but the complicated pieces with deep holes, slots, etc., present the toughest problem. The "octopus" anode illustrated (Fig. 2) is very effective in the battle for uniformity of deposition of chromium in these slots, holes, and recesses. This anode consists of a copper conducting bar coated with lead, with the heavy lead wires welded to the lead-coated bar. Lighter wires (1/8 or 1/16 diameter, whichever is required) are welded to the ends of the heavier wire to insure flexibility and firmness after these wires are put into position.

The mold must be studied as to correct set-up position to allow a free flow of gas. No part of the mold should be perfectly flat, otherwise a pitting of the deposit, due to formation of hydrogen bubbles on a flat surface, is likely to occur. Low points, places less likely to plate, must have the anode closer than in the case of high points, places more apt to plate. In other words the anode wires are pointed into the low points and away from high points, tending to equalize the current density. For slots, etc., the anode wires may be flattened and shaped, whereas for holes a suitable size wire conforming to the correct current density is used. The beauty of this type (octopus) anode is its high maneuverability—practically pointing the wires into places where plate is desired.

After the piece is set up it is cleaned cathodically in a good alkaline cleaner using 40 to 50 amps./sq. ft.—rinsed well in cold water, then anodically treated in a 28 oz./gal. chromic acid solution, 90 to 100 amps./sq. ft., temp. 130 to 140 degrees F. This chromic acid treatment produces a fine microscopic etch insuring good adhesion of the chromium to the base metal. From this bath it is placed directly into the plating bath with the plating

time being determined by the required thickness. As for current density and rate of deposition the graph (Fig. 3) is in close proximity to the results obtained. A minimum thickness of .001 is

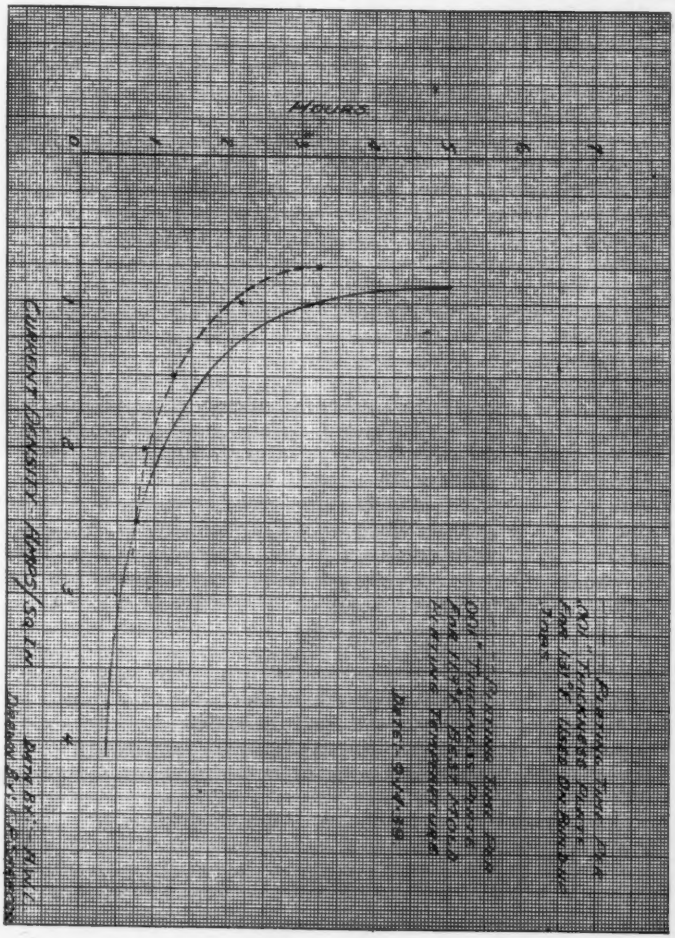


Fig. 3

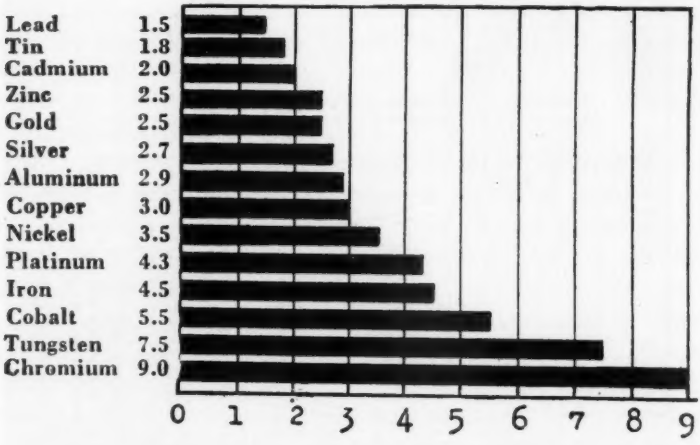
recommended for best all around results. The plate should be bright when removed from the plating bath.

After plating the work is rinsed and neutralized in an alkaline bath to remove all traces of chromic acid. The polishing operation

described earlier in this paper is again repeated to bring the desired high lustre. Should the plate be slightly frosty this can be polished bright, using small felt cones, etc., and a good chrome rouge. A milky deposit is objectionable and under no circumstances should be allowed to proceed further than the plating room.

TYPE OF SOLUTION

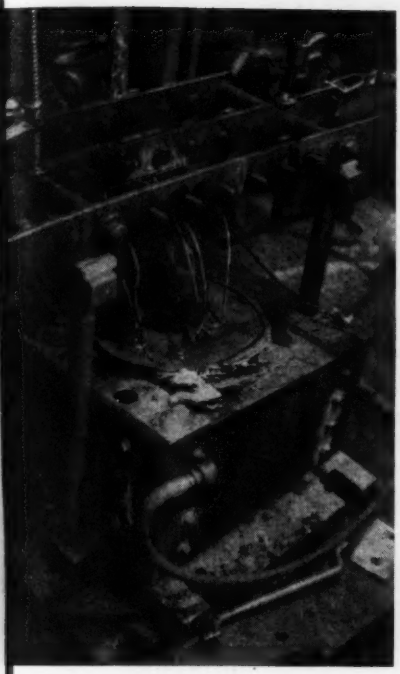
The solution found best for use in mold plating is the 400 g/l with the sulfate ratio (acid radical) maintained at 1/100 in proportion to chromic acid. Any great or prolonged deviation is detrimental to brightness and throwing power, both essential to successful mold plating. The 400 g/l solution is preferable to the 250 g/l type of solution because of its superior throwing power,



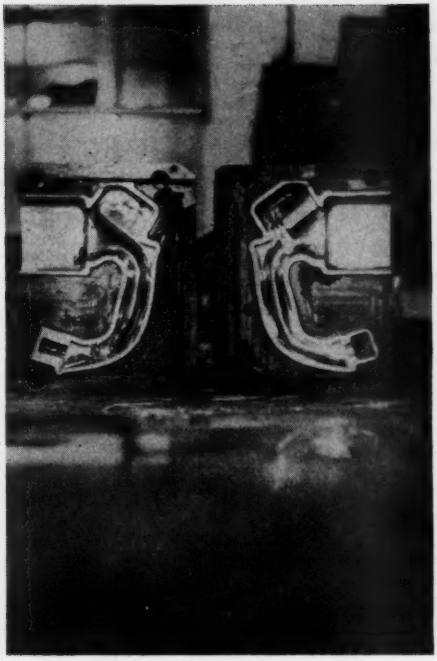
Comparative Hardness of Metals (Moh's Scale)

Fig. 4

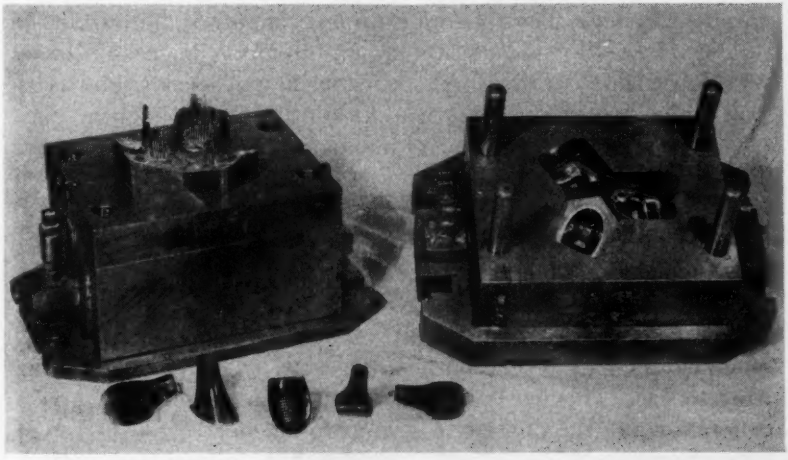
slightly brighter finish and its heavier concentration enabling it to resist rapid ratio changes. Care of this more concentrated solution need not be quite as frequent as solutions of lesser propor-



above photograph shows a mold being plated
de a tank. In other words, the cavity is used
ne plating tank and the heating and cooling
nels are used for temperature control. The
hat a mold cavity is larger than the plating
is meaningless. Any size cavity can be plated
ustrated.



Two plated mold halves used in the making of flat-iron handles. Besides improving finish the plated surface facilitates the long flow of compound in a mold of this type.



A view of one of the plated molds used in the manufacture of the famous plastic shoe heel.

tions. The above statement, however, must not be misunderstood. Whereas the 250 g/l solution is not considered quite as effective, it is by no means objectionable.

A temperature of 113 degrees F. is recommended for this type of plating because of a good throwing power, and temperature lower than this would represent a slower rate of deposition, increasing the time factor to obtain necessary thickness so essential for good wear-resisting chromium plated molds. Tests have also proven there is little or no difference in hardness between 113 degrees F. and the higher temperatures used for rapid plating or build-up jobs. In fact, the hard plating temperature range for industrial chrome (Fig. 4) is generally recognized as existing between 113 degrees F. and 131 degrees F. However, if temperatures higher than 113 degrees F. were used for mold plating (particularly complicated pieces) there would be a tendency to reduce the uniformity of deposits. The low corners in deep recesses would receive milky deposits, whereas the high points would have a tendency to build up because of the proportionate increase in current density to cope with the increase in temperature.

OTHER USES FOR HARD CHROME IN PLASTIC INDUSTRY

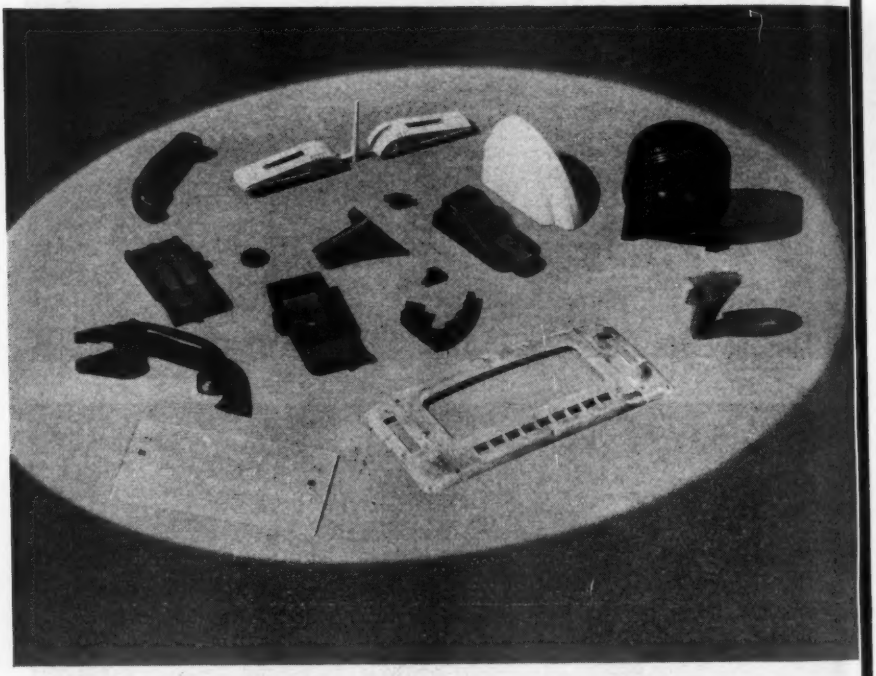
There are many other uses for hard chromium plating in the Plastic Industry aside from those already mentioned in this paper. The always essential salvage angle should perhaps come first on this list. In many cases it is much more economical, both from the financial and time-saving standpoint, to bring back to size by plating rather than build new parts, such articles as worn cavity side walls, knockout pins, hole forming pins, monogram pins, plated to eliminate burr around monogram in molded parts, worn automatic machine parts, and insert holders. Curing forms, used to keep the proper dimensions of molded parts, are useless when worn below a certain size. These are brought back to size by plating, which also increases the wearing surface. In many quarters the chromium plating of threaded parts is condemned. The threaded parts of a mold present an exception, however, and many worn molds of this character have been reclaimed by plating back to size. This list is at best only partial but serves to give a general idea of the numerous savings to be effected by the use of hard chrome.

A view of plated mold in operation illustrating high finish, both on mold and molded product.

The above photo illustrates the finish and free extraction of a plated mold.

The use of welding for changing dimensions, etc., is widely employed. This practice involves machining, re-hardening, and refinishing of the welded part. These extra operations can be eliminated by using a build-up of chrome and grinding to size.

The plating of taps, cutters, etc., used in the finishing of molded parts results in longer wearing life. This is particularly true in the



A few of the many molded parts that have been extracted from plated molds.

case of cutters where two to three hundred percent more life is obtained. Worn taps when salvaged by plating to size and heat treated outlast the original taps many times. Heat treating of taps and cutters after plating is generally done at a temperature of 300 degrees F. and helps to remove the hydrogen occluded during the plating operation.

CONCLUSION

The following is a list of qualities deemed necessary for successful chromium plating of molds:

1. Highly finished, defect-free, base metal.
2. Uniformity of deposit.
3. Plate thickness of .001.
4. High finish plated mold assuring high finish molded product.

The purpose of this paper is to promote more and better plating of molds, etc., in the Plastic Industry. With the growing of this industry, and chromium plating found "most advantageous," there is no reason why the plater, by using the ingenuity and versatility for which he has been noted in the past, cannot change the term "advantageous" to "indispensable."

ARTHUR LOGOZZO
Foreman of Plating Department
Plastics Division, G. E. Co.
Pittsfield, Mass.

RAILROAD, BUS AND AIRLINE TRANSPORTATION TO DAYTON

With the 1940 Convention rapidly approaching, the Dayton Branch thinks it advisable to inform the prospective delegates regarding the transportation and hotel rates. We have gathered a complete list of all rates both hotel and transportation, which is published below.

The fares listed are from all cities which have branches of the A.E.S. to Dayton. The airlines offer a ten percent reduction on all round-trip tickets and a fifteen percent reduction on one-way trips to all parties holding Air Travel Cards.

The Hotel Reservations Committee has an understanding with the hotel managements that there is to be no elevation in room prices for the Convention. The regular rates as listed will be in effect.

WM. J. WISE, *Chairman*
Publicity Committee

Hotel Rates
(Rooms with Bath)

	Double	Twins
Hotel Biltmore	**$5.00**	**$5.00**
	6.00	**6.00**
	7.00	**7.00**
Hotel Van Cleve	**4.00**	**5.00**
	5.00	**6.00**
		7.00
Hotel Holden	**3.00**	**4.00**
	3.50	**4.00**
Hotel Miami	**4.00**	**5.00**
	4.50	**6.00**
		7.00
Hotel Moraine		**3.50**
		4.50
Hotel Gibbons	**4.00**	**5.00**
	4.50	**6.00**
	5.00	

Passenger Fares — Dayton Ohio

	RAILROAD FARES				BUS FARES		Air Line Fares	
	In Coaches		In Pullman					
	One Way	Round Trip	One Way	Round Trip	One Way	Round Trip	One Way	Round Trip
Anderson, Ind.	**$2.23**	**$4.05**	**$2.70**	**$5.40**	**$2.15**	**$3.90**	—	—
Baltimore, Md.	**14.11**	**21.70**	**16.95**	**31.80**	**8.46**	**15.25**	**$26.70**	**$48.06**
Washington, D. C.	**14.11**	**21.70**	**16.95**	**31.80**	**8.45**	**15.25**	**25.50**	**45.90**
Binghamton, N. Y.	**14.44**	**22.25**	**17.35**	**32.55**	**11.40**	**20.55**	—	—
Elmira, N. Y.	**13.48**	**21.10**	**16.20**	**30.60**	**10.40**	**18.75**	—	—
Boston, Mass.	**22.19**	**30.60**	**26.65**	**48.35**	**14.65**	**21.70**	**46.25**	**83.24**
Bridgeport, Conn.	**18.94**	**28.40**	**22.75**	**42.30**	**12.30**	**22.75**	—	—
Chicago, Ill.	**6.65**	**11.30**	**8.00**	**15.60**	**5.20**	**8.25**	**14.70**	**26.46**
Cincinnati, Ohio	**1.32**	**2.40**	**1.60**	**3.20**	**1.10**	**2.00**	**3.15**	**5.66**
Cleveland, Ohio	**5.19**	**9.00**	**6.25**	**12.25**	**4.10**	**7.40**	**11.30**	**20.34**
Detroit, Mich.	**4.98**	**8.70**	**6.00**	**11.80**	**4.05**	**7.30**	**10.40**	**18.70**
Grand Rapids, Mich.	**6.82**	**11.60**	**8.20**	**16.00**	**5.45**	**9.85**	—	—
Hartford, Conn.	**19.73**	**28.15**	**23.70**	**43.45**	**13.10**	**23.60**	**41.20**	**74.16**
Los Angeles, Calif.	**43.46**	**76.04**	**52.07**	**84.54**	**34.65**	**62.40**	**115.65**	**208.16**
Milwaukee, Wisc.	**8.35**	**14.55**	**10.55**	**19.45**	**5.45**	**9.85**	**19.70**	**35.46**
Montreal, Can.	**20.88**	**30.55**	**25.05**	**46.45**	**16.20**	**29.20**	**52.55**	**94.59**
Newark, N. J.	**17.32**	**25.60**	**20.80**	**38.55**	**11.20**	**20.20**	**34.30**	**61.74**
New Haven, Conn.	**19.36**	**27.75**	**23.25**	**42.65**	**12.55**	**22.60**	—	—
New York, N. Y.	**17.52**	**25.60**	**21.05**	**38.90**	**11.25**	**20.25**	**34.30**	**61.74**
Philadelphia. Pa.	**15.26**	**23.10**	**18.35**	**34.30**	**9.85**	**17.75**	**29.50**	**53.10**
Pittsburgh, Pa.	**6.53**	**11.10**	**7.85**	**15.30**	**5.00**	**9.00**	**13.30**	**23.94**
Providence, R. I.	**22.15**	**30.55**	**26.60**	**48.25**	**14.20**	**25.60**	**44.25**	**79.64**
Attleboro, Mass.	**22.99**	**30.55**	**27.65**	**46.85**	**14 50**	**26.10**	—	—
Rochester, N. Y.	**11.44**	**18.25**	**13.75**	**26.15**	**9.25**	**16.65**	**25.58**	**46.04**
San Francisco, Calif.	**43.46**	**76.04**	**52.07**	**84.54**	**34.65**	**62.40**	**121.00**	**217.80**
Springfield, Mass.	**19.73**	**28.15**	**23.70**	**43.45**	**13.35**	**24.05**	**41.20**	**74.16**
St. Louis, Mo.	**8.90**	**14.65**	**10.70**	**20.55**	**6.50**	**11.70**	**19.20**	**34.55**
Toledo, Ohio	**3.57**	**6.40**	**4.30**	**8.55**	**3.15**	**5.70**	—	—
Toronto, Can.	**13.05**	**20.75**	**15.35**	**25.75**	**8.95**	**16.15**	—	—
Waterbury, Conn.	**19.73**	**30.00**	**23.70**	**44.30**	**12.75**	**22.95**	—	—

External Heating *of* Plating Solutions

By DALE AUGSBURGER
Sales Engineer
The Duriron Company, Inc.
Dayton, Ohio

A GENERATION or so ago saw the birth of what is today known as the Plating Industry. At that time, most of the chemicals, as well as the equipment, were home-made, and each plater had his "secrets" as to how certain limited results could be obtained.

The demands of modern industry, with the cooperation and experimental research of the plating engineer and chemist, have produced methods whereby the finished plated product is durable, as well as beautiful in appearance.

Naturally, a great deal of credit must be given to those who have produced the modern chemicals and methods. However, we should not overlook the fact that present day results could not have been obtained without the aid and cooperation of the equipment manufacturer. His ingenuity and resourcefulness have placed equipment at the disposal of the platers, enabling them to produce the finished product in the most economical manner.

Most present day, and some of the earlier plating solutions, give the best results when some degree of heat is applied. This was usually accomplished by using heating coils in the plating bath. Coils of ordinary materials were fairly satisfactory for most of the cyanide solutions, as well as the acid solutions with a high pH. With the development of the low pH solutions, where higher and closer temperature control is required, it has been found that heating with coils has brought up a number of problems which can be eliminated by the external method of heating.

External heating, the elimination of coils in the work tank, and the circulation of solution through a heat exchanger outside the tank, is especially advantageous for nickel, copper and chrome solutions, since a high rate of production is usually required, with a minimum of rejections. These conditions are possible with external heating, since the following advantages are obtained:

1. Elimination of loss of solution by siphoning through concealed leaks.
2. Elimination of hot and cold areas in work tank, resulting in a more uniform finished product and fewer rejections. (Temperature variation in many installations less than 2°.)
3. Production time loss is eliminated, as frequent coil repairs and replacements are not required.
4. Productive capacity of any given size tank is increased, as space-taking coils inside the tank are eliminated.
5. Gentle flow of solution through work tank, caused by circulating through the heat exchanger, with the use of higher current density, often allows the cutting down of the plating time.

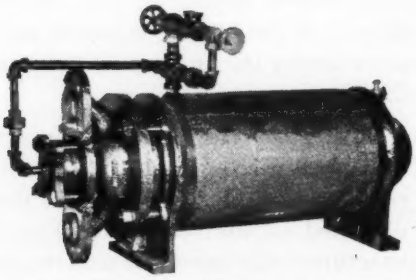
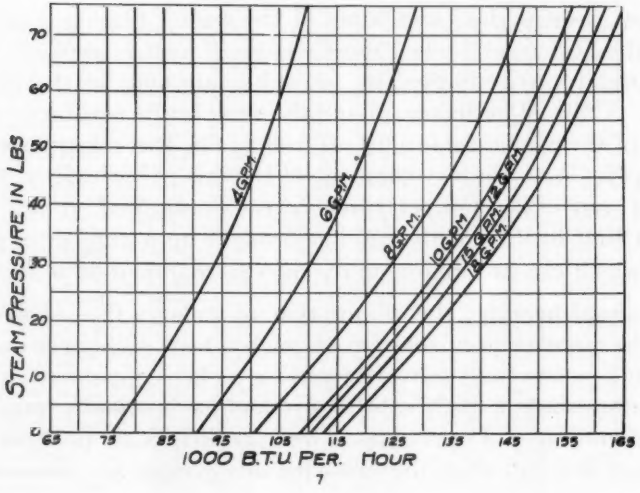


Fig. 1 Duriron No. 6-025 Heat Exchanger



6. Increased heating efficiency, since a square foot of heating area in the form of heat exchangers is about twice as efficient as the same heating area in the form of coils. (This is partially accomplished by the turbulent flow of solution, which destroys the insulating film that is formed over the heating surfaces.)
7. For solutions where continuous or intermittent filtering is required, such as bright nickels, the exchanger can be cut-in on the filter discharge line, thereby eliminating duplicate pumping equipment.

External heating of the more corrosive plating solutions would not be as economical if heat exchangers were available only in the ordinary materials. Fortunately, equipment manufacturers for the chemical industry have been aware of the needs of the plating

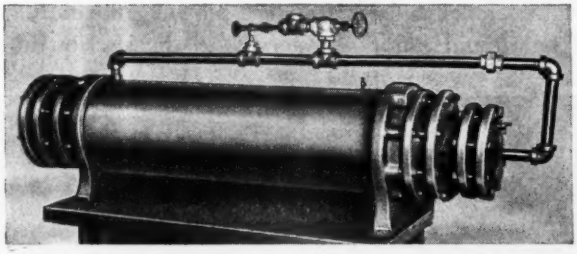
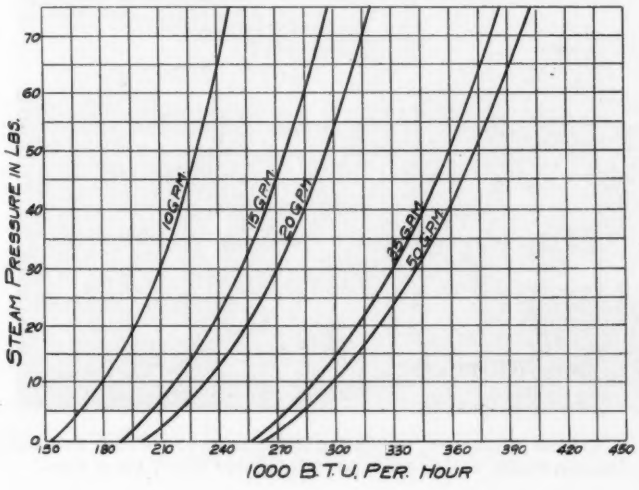


Fig. 2 Duriron No. 12-140 Heat Exchanger



industry. The Duriron Company, Inc., Dayton, Ohio, was one of the pioneers in auxiliary plating equipment, such as centrifugal pumps, heat exchangers, valves, pipe and fittings.

Duriron, which is a high-silicon iron, and resistant to most commercial corrosives, is chemically inert to all nickel plating solutions, that is, the nickel solution will not attack the Duriron, nor will the Duriron contaminate the solution. Duriron is also highly resistant to chromium sulphate baths, as well as copper sulphate and cyanide solutions.

Duriron heat exchangers are available in two sizes which, by installing in parallel if more than one is needed, will take care of the heating requirements of any size plating machine. Figures #1 and #2 illustrate, along with the heating curves, the two available heat exchangers.

Figure #3 shows a typical heating and filtering installation on a large bright nickel fully-automatic plating machine. A self-priming centrifugal pump, connected to the suction line in the

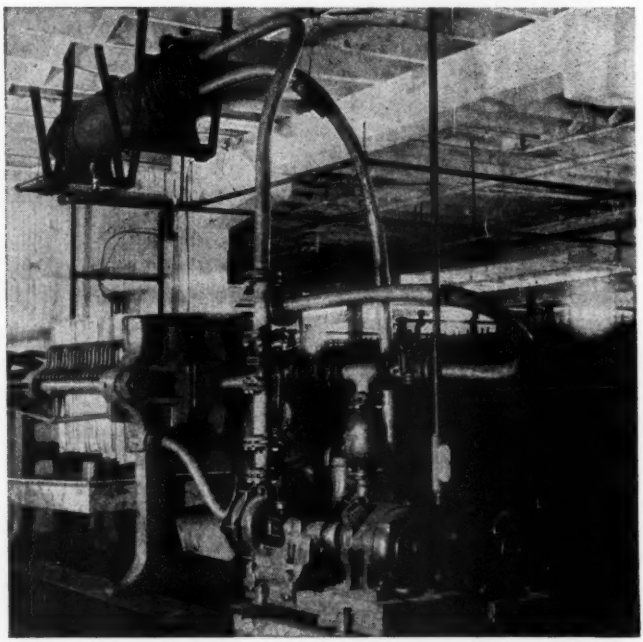


Fig. 3 Typical Installation, Consisting of Duriron #12-140 Heat Exchanger, Duriron Pump, Valves, Pipe and Fittings, and Sperry Filter Press.

tank, discharges the solution into the filter press. To overcome friction in this particular system, and to allow the use of a lower head pump on the inlet side, a booster pump is used on the filter outlet, which discharges the solution through the heat exchanger and back into the work tank at a number of points, through perforated pipe. This method of discharging assures the even distribution of cleaned and heated solution. By-passes are provided, in order that the heating will not be interrupted during the periods when the press is down for cleaning, or when no filtering is desired.

Figure # 4 shows a combination heating and filtering unit for tanks of 2000 gallons, or less, capacity. This type unit, though smaller, is essentially the same in principle as the installation shown in Figure # 3, since heating and filtering are both done in one operation, and by-passes are provided so that the filter can be cut out when no filtering is desired. Units of this type are particularly adaptable to the requirements of the small or medium-size plating plant, as they are compact, can be installed at a

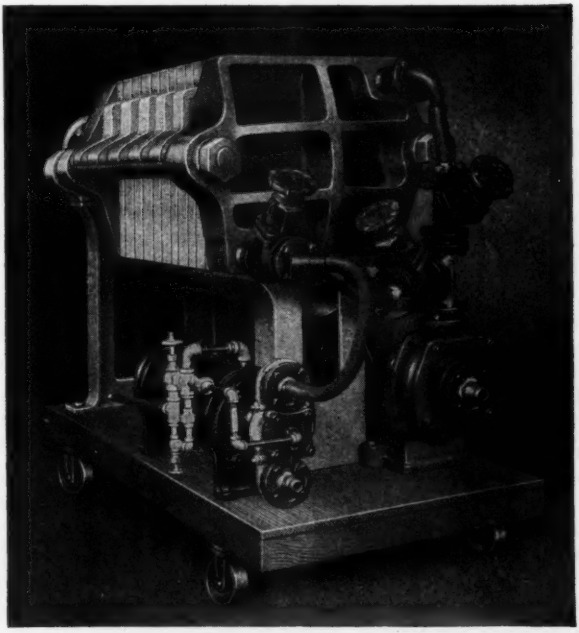


Fig. 4 Semi-Portable Unit, Consisting of Duriron # 6-025 Heat Exchanger Duriron Pump, Valves, Pipe and Fittings.

minimum of expense, and being semi-portable, can be used for filtering only, of solution in other tanks over the week-ends, when the regular work tank is not in use.

The heating and cooling of chrome baths, by the use of coils, has in most cases been an exceedingly annoying and expensive proposition. It is now possible to maintain proper operating temperatures by the external method of heating and cooling. The cycle of flow is similar to nickel and copper heating, that is, the solution is pumped out of one end of the tank and discharged through either the heater or cooler, as the temperature indicates, and back into the opposite end of the tank. A system of this type is fully automatic by the use of temperature control equipment, which controls the quantity and path of the solution, as well as the steam and cold water valves. Here, too, temperature variations can be held to a maximum of one or two degrees, and the agitation set up by the movement of solution through the exchangers is of a decided benefit in obtaining a more uniform and better finished product, with fewer rejections.

KOCOUR BUFFING COMPOUNDS WITH ALUMINUM DUST
(Made Under Patent No. 1,632,909)

Several years ago it was discovered that the presence of a little as 1% of aluminum dust in a buffing compound aided materially in cleaning the work after buffing. This was especially true where the compound was lodged in threaded portions or holes in the work. The way by which it worked was that the aluminum dust reacted with the alkaline cleaner to form hydrogen gas, which pushed the compound from the work. No detrimental effects were caused by aluminum in the buffing compound, nor was the cleaner measurably weakened. Actually, a salt called sodium aluminate was slowly formed in the cleaner which had the beneficial effect of a non-tarnishing agent.

Recent medical discoveries have indicated that the presence of aluminum dust in buffing compositions may have far greater advantages than just cleaning. These discoveries showed that when aluminum is present with silica dust, silicosis is prevented. As tripoli, coloring, emery compounds and other composition are composed essentially of silica dust, the advantage of aluminum dust would be of great importance. The use of aluminum dust in buffing compounds is covered by our patent.

Buffing compounds containing aluminum dust are only slightly higher in price than ordinary compounds. Their added advantages greatly outweigh their increased cost. Write for sample, giving full details of the kind of work done, speed of wheel, etc.

IN THE
UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

UNITED CHROMIUM, INCORPORATED,
Plaintiff,
vs.
GREAT LAKES PLATING & JAPANNING CO.,
Defendant.
} In Equity No. 16,206

Before Honorable JOHN P. BARNES, *Judge*,
Monday, November 27, 1939,
3:00 o'clock P. M.

Appearances:
GEORGE F. SCULL, Esq., and
CASPER W. OOMS, Esq.,
on behalf of Plaintiff;
FREDERICK Z. MARX, Esq.,
of Messrs. Butz, von Ammon & Marx,
MERRELL E. CLARK, Esq., and
MAXWELL BARUS, Esq.,
on behalf of Defendant.

DECISION

THE COURT (Orally): I shall refer to the Fink Patent No. 1,581,188 as the "bath patent." The application for that patent was filed December 19, 1925. The patent issued April 20th, 1926. Claims 4, 6, 10, 13, 16 and 18 are in suit.

The bath patent discloses a process or method of electrodepositing chromium as distinguished from a formula for a plating bath. The patent disclosed that it was the acid radical which acted as the catalyst, whether that radical is found in the chromic sulphate, in sulphuric acid or is not a sulphate radical at all. The patent also discloses that it is the total of catalyst acid radicals present in the bath, whether of one kind or another, that must be taken into account. The patent expressly mentions four catalytic agents, sulphate, fluoride, phosphate and borate radicals. The patent permits chromic acid concentrations of from about 150 grams per liter to saturation, perhaps 1,000 grams per liter, but teaches that there must be a ratio between the concentrations of the chromic acid and the catalyst, and gives limits for this ratio.

Does the defendant infringe the bath patent? Defendant's baths contain chromic acid, sulphate, and silicofluoride. Silicofluoride is classified as a fluoride in the books. The patent mentions the fluoride radical. Silicofluoride and fluoride behave similarly as catalysts in chromium plating baths. The defendant says that in using silicofluoride, it does not use any proportions disclosed in the Fink bath patent. The Fink bath patent does not give in definite figures the amount of every catalyst to be used. It does give all the data and instructions to guide those skilled in the art.

The defendant contends that the use of a fluoride radical is anticipated by the Hambuechen patent. It is not so. Hambuechen did not disclose anything about radicals as such or their catalytic effect.

The Court is of the opinion that claims 4, 6, 10, 13 and 18 are infringed.

What was the date of Fink's invention disclosed in the bath patent? There has been a great deal of controversy on this subject. Upon considera-

tion of all the evidence, including Fink's solution cards, Nos. 66, 60 and 68, the Court fixes upon May, 1924, as the date of invention.

The Udy Defense

The evidence, including the Udy records, does not show that, prior to Fink, Udy ever operated a chromium plating bath by the methods stated in Fink's claims. Udy disregarded catalyst acid radicals in the bath, other than sulphate, and likewise disregarded the ratio of chromic acid to the totality of catalyst. Neither did he regulate the ratio in continuous operation. While Udy did specify limits of chromic acid concentrations and limits of sulphuric acid concentration, he neither specified nor maintained any fixed ratio between these concentrations.

While Udy did have in mind certain inconsequential ratios such as those of trivalent chromium to hexavalent chromium and to sulphate, he did not even consider, let alone specify, the ratio between chromic acid concentration and total acid radical concentration.

The Court holds that Udy's process, if he can be said to have had a definite process, was not that of the Fink Patent.

Having reached the conclusion which has just been stated, it is unnecessary to consider at length the defendant's charge of bad faith on the part of the plaintiff in connection with the Udy matter. It is sufficient to say that the Court's attention has been called to no evidence that is not as consistent with good faith as with bad faith. Furthermore, no sufficient motive has been shown wherefore the plaintiff or its predecessor in interest would cause a determination of priority to be made in favor of Fink and against Udy, contrary to the facts.

The Manhattan Defense

The plaintiff contends that Manhattan never had the Fink invention, because (1) they were working upon a fallacious trivalent chromium sulphate theory, (2) they permitted the chromium sulphate concentrations to vary haphazardly, thereby showing lack of appreciation of its effect, (3) they put methyl alcohol in their baths throughout their work, to increase the trivalent chromium, in an effort to overcome the many difficulties which they encountered, and (4) they made up baths which failed to work and which they disregarded (discarded) because they did not know to what the difficulties were due. This happened as late as April, 1925, after more than a year's experimenting. The Court is of the opinion that these contentions of the plaintiff are supported by the evidence, and that accordingly, Manhattan did not anticipate.

The Sargent Article as an Anticipation

Sargent taught that trivalent chromium of chromic sulphate was the essential thing. Sargent did not teach that acid radicals were the important things that needed to be controlled. Accordingly, he did not teach that the radicals function as the catalyst or that their concentration should bear ratio to the chromic acid concentration within defined limits. Sargent's suggestions as to the regulation of the bath for continuous operation were erroneous. He did not know or teach that the catalyst acid radicals and their ratio to the chromic acid concentration were the critical elements.

An important consideration in connection with the Sargent article is that qualified men who followed Sargent's teachings failed.

The Court concludes that the Sargent article did not anticipate the disclosure in the bath patent.

Grube Patent No. 1,496,845 as an Anticipation

Haring of the Bureau of Standards, the Manhattan experimenters and Grube all apparently shared the idea that since the Sargent formula failed to give consistently good results, the resulting failures might be cured by the

addition of some substance which would produce more trivalent chromium in the bath. There is no evidence that anyone ever successfully used the Grube bath. Haring and Schwartz both tried but failed. There is no evidence that anyone is using such a bath today.

The Court concludes that Grube does not anticipate, and finally concludes that the Fink bath patent is valid.

The Fink Patent No. 1,802,463 will be referred to as the bright plating patent. The application for this patent was filed September 19, 1925, and the patent issued April 28, 1931. Claims 1, 2, 3, and 4 are in suit. Under this patent the plating is done in a bath of proper composition, under controlled conditions determined by a well defined limiting co-ordination of cathode current density and bath temperature in relation to the concentration of the bath. Defendant denies infringement of this patent because of alleged difference of catalysts. The Court has decided this question adversely to the defendant in connection with the consideration of the so-called bath patent and adheres to that conclusion.

In the Court's opinion, all four claims of the Fink bright plating patent are infringed.

What is Fink's date of invention? The evidence discloses that Fink conceived his invention certainly as early as May, 1924, he proceeded diligently to reduce his invention to practice, and from that time until the filing of his application he was producing bright plating in accordance with the method of his claims and he did reduce the entire claim to practice by the filing of his application. Accordingly, he is entitled to a date of invention, as of the date of his conception, which was certainly as early as May, 1924.

Did Haring anticipate the bright plating patent? Haring did not know anything of the method of the bath patent until December, 1926. Furthermore, he did not begin his work until November, 1924. Before that date, Fink had conceived his invention, was doing bright plating and was getting together the data which was embodied in the bright plating patent. Haring did not anticipate.

Did Udy anticipate the bright plating patent? Udy never used the method of the bath patent. Furthermore, Udy believed that temperature alone was the controlling factor, and Udy had no idea of coordinating temperature and current density. He did not anticipate.

Did the Pfanhauser article of June 18, 1924, anticipate? Pfanhauser, like Haring and Udy, knew nothing of the method of the bath patent and he did not indicate the need for co-ordinated temperature and current densities. Before June 18, 1924, Fink had conceived his bright plating invention and was using it with his bath invention. Pfanhauser did not anticipate.

The Court concludes that the Fink bright plating patent is valid.

Counsel for the plaintiff may, within ten days, prepare and, within like time and on notice, present drafts of findings of fact and conclusions of law and a decree not inconsistent with what the Court has stated.

Counsel may take and keep, subject to the order of Court, the exhibits of their respective clients. I will return to you gentlemen some papers which you handed to me. Here are three original exhibits. Here are some papers that are not exhibits.

Let this transcript be filed of record.

November 29, 1939.

JOHN P. BARNES,
Judge.

Business and Social News BRANCH NEWS Educational Activities

Boston Branch met Thursday December 7 at the Manger hotel, Boston with President DeLorme in the chair.

Four applications were read and turned over to the board of managers for approval before election, as follows: Leslie E. Guilford, Associate, Waltham Watch Co., Waltham, Mass; Joseph R. Hughes, 198 Rock Island Rd., Quincy, Mass., Associate, Bruce E. Warner, Y.M.C.A., Worcester, Mass., Active, and Raymond A. Gosselin, 32 Tremont St., Cambridge, Mass., Active.

The application of Everett R. Ryan, 29 Pine St., Greenwood, Mass., Associate, was read and approved by the board of managers and he was elected to membership.

Boston Branch extended its sincere sympathy to the family of the late Oliver J. Sizelove in their recent bereavement by standing in silent prayer for one minute.

Colgate Gilbert was appointed chairman of the coming banquet and will pick his own committee.

The question of a chemistry class was discussed and a committee was appointed and will make a report at the next meeting, all those members of the Branch who wish to join should be at the next meeting.

There being no further business the chair was turned over to the librarian, Ed. Jeveli. He had as the speaker Dr. Saltonstall, Udylite Corporation, Detroit, Mich., the subject of his talk was "Nickel Plating" with correlated abstract tables and graphs. Copies of these were passed around so that the members were able to follow the talk and afterwards asked questions. A rising vote of thanks was given the Doctor for his interesting talk and we hope to have him again.

A discussion amongst the members took place for another hour, then the meeting adjourned at 11 P. M.

A. W. GARRETT, *Secy.*

Wing Your Way to Dayton the Birthplace of Aviation

Hartford Branch of the A.E.S. held its regular monthly meeting on Monday evening, December 18, 1939, at the Elks' Club, Bristol, Conn.

The meeting was called to order at 8:00 P. M. with President Backus in the chair. Minutes of the previous meeting were read and accepted. No communications or bills were presented.

The speaker for the evening was Mr. J. D. Tierney, of the Storts Welding Co., of Meriden, who read a very interesting paper on "Some of the Influences Affecting the Use of Spray Rinsing Facilities."

Mr. Tierney's paper was very interesting, made more so by his being able to see some of the equipment mentioned, set up and in actual operation.

The members were very pleasantly surprised by the serving of a delicious lunch, also made possible by the speaker of the evening.

It seemed good to see Mr. H. R. MacFadyen, who has been sick and confined to the hospital a good part of the last year, back among us again.

The meeting was attended by thirty-five members and was adjourned at 11:00 P. M.

V. E. GRANT, *Secy.*

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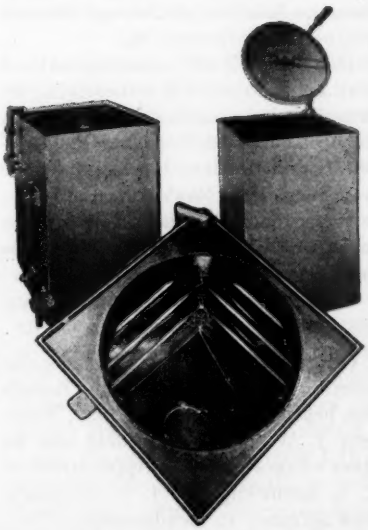

STORTS WELDING COMPANY

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Manufacturers of Welded Fabrications to Specification

Milwaukee Branch held its December meeting in the Colonial Room of the Republican Hotel on December 15. President Jack Geissman was confined to his home ill and could not be present. In the absence of the vice-president, the Branch unanimously elected Dan Wittig to act as chairman for the evening. It being Dan's seventieth birthday, we all thought this very fitting, but Dan had beaten us to the punch by handing around a box of excellent cigars.

The Banquet Committee reported that April 6 had been decided upon for the date of the Banquet, at the Schroeder Hotel.

Mr. Siefen of Detroit was the speaker of the evening, and his subject was "Polishing." His talk was quite informative, and he answered many questions, both after his paper, and later informally over the keg of cheer donated by Jake Hay of Chicago, who was visiting us for the evening.

Ray Goodsell still is leading the pack with applications of new members. He brought in the applications of Robert E. Boettcher and Raymond R. Goodsell, both of Racine. Raymond, by the way, is the elder Ray's son.

Please note that from now on the meetings of Milwaukee Branch will be on the *first Friday* of each month.

DEXTER F. RHODES, *Secy.*

Chicago Branch. The regular monthly meeting of the Chicago Branch was held on December 9, 1939, President J. W. Hanlon presiding and all other officers present. Applications of E. S. Schmeling and J. R. Guminski were accepted to membership.

Mr. O. E. Servis reported that the Research Committee accepted the suggestions submitted to them by Chicago Branch, and the committee was discharged with thanks.

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Mr. H. A. Gilbertson reported that the banquet preparations were well on the way and the entertainment was going to be the best the Branch had ever had.

The meeting was then turned over to the librarian, Mr. O. Weickmann, who introduced Dr. E. J. Kocour. His subject was "Dust in the Lungs," which was very interesting. Dr. Kocour was given a rising vote of thanks for his splendid talk.

The following questions were in the Question Box:

Q. Could wetting agents for free rinsing after chrome plating be used to eliminate the sawdust drying?

A. Not advisable.

Q. How much difference is there between pH papers and block comparitor?

A. The pH papers are about two to three-tenths lower than the comparitor.

Q. What causes lead anodes in a chrome solution to bulge and buckle?

A. Too thin for the current density being used.

M. H. LONGFIELD, *Secy.*

Bridgeport Branch. The regular meeting of the Bridgeport Branch was held December 7, 1939, in the Chamber of Commerce Room, Stratfield Hotel. The meeting was conducted by Pres. Wm. Ehrencrona and about thirty members were present.

Minutes of the last meeting were read and accepted. A communication from the Bridgeport Public Library was read, also one from the Sizelove family.

The communication from the Master Platers' Association was read and remarks regarding it were made by Ray O'Connor.

Librarian Chick Helmle conducted the educational session. The discussion was regarding cadmium and nickel solutions, as well as chromium, in which debate most of the members took part. The meeting adjourned 10:30 P. M.

EUGENE PHILLIPS, *Secy.*

Wing your way to Dayton the Birthplace of Aviation

Newark Branch. The regular meeting of the Newark Branch of the A.E.S. was held on Friday evening, December 1, at the Club Room of the Hotel Douglas, Newark, N. J. The meeting was called to order at 8:30 P. M. with President John Kotches, presiding. Other officers present were: George Wagner, secretary; Nelson Sievering, treasurer; Paul A. Oldam, librarian; Bill Harrison, Harmon Hunt and George Reuter, trustees.

The minutes of the previous meeting were read and approved. A communication from Mr. Chester G. Bethke was read and the secretary was instructed to answer it.

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Our librarian, Mr. Paul A. Oldam next presented Mr. Clarence W. Smith of the Philco Radio and Television Corporation of Philadelphia as our guest speaker for the evening. His subject was "Recent Developments in Bright Zinc Plating" which proved very interesting. Some of the important factors in a bright zinc plating bath are as follows: Metallic zinc builds up rapidly and must be kept under control. It is very important to keep impurities out of the bath. Sodium sulphide, hypo and zinc dust are used as purifiers. High purity anodes should be used. Organic Addition Agent RH 309 improves zinc plating equally as well as Cadmium Lustre and increases throwing power. Salt spray test shows no added corrosion. Various bright dips were given and weak nitric acid dip was found to be most economical because the range is greater. It is advantageous

to use a warm solution. Samples of bright zinc plating were passed around. Mr. Smith then gave the following formulas of various solutions:

	No. 1	*No. 2*	*No. 3*	*No. 4*
Zinc cyanide	10 ozs.	10 ozs.	10 ozs.	10 ozs.
Sodium cyanide	7 ozs.	7 ozs.	8.5 ozs.	8.5 ozs.
Caustic soda	10 ozs.	10 ozs.	10 ozs.	10 ozs.
Hypo	1/2 oz.			1/2 oz.
Sodium sulphide	1/15 oz.	1/15 oz.	1/15 oz.	1/15 oz.
Molydic oxide			1.7 ozs.	1.7 ozs.
Total sodium cyanide	15.4 ozs.			
Ratio of cyanide to zinc	2.75	2.75	3.0	3.0
Temperature	95° F.	95° F.	95° F.	95° F.

Mr. Smith was accompanied by a delegation from the Philadelphia Branch. Mr. Underwood, Mr. Fulforth, Mr. Gehling and Mr. Jackson were called upon for some remarks. Mr. Smith was given a rising vote of thanks for his interesting talk.

Mr. Paul Oldam then conducted a Question Box in which one problem was mostly discussed, namely bright gold plating for heavy deposits. The answer to this problem was not solved and was left open for discussion at a future meeting. Meeting adjourned at 11 P. M.

GEORGE WAGNER, *Secy.*

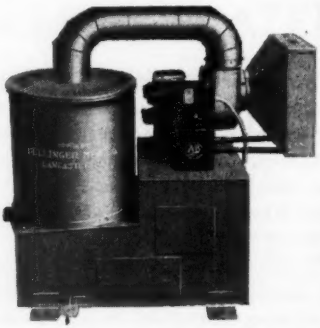
Wing Your Way to Dayton
the Birthplace of Aviation

Anderson Branch of the American Electroplaters' Society held their regular monthly dinner meeting at the Anderson Y.M.C.A. on Monday evening, December 11, 1939, at 6:30 P. M.

Mr. Frederick Fulforth, our first vice-president, was the speaker for the evening. Mr. Fulforth presented a motion picture entitled, "The Visual Story of Steel for Plating Purposes," and explained in detail the different operations shown in the picture. I think everyone was impressed by the fact that a great many of the platers', as well as the polishers', problems can be solved by the purchase of the higher grades of steel that have been developed by the more progressive steel manufacturers. It was very interesting to see the different operations that take place in the manufacture of the higher grades of steel and to notice the care with which it is handled and inspected. It makes us realize that after all the steel manufacturers do consider the platers' problems and are forever seeking means of improving their product.

We were very happy to welcome several guests, including a group from

KREIDER DRYER



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The Kreider Centrifugal Dryer is built for drying all types of plating.

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the Greer Steel Company, and hope that they will be able to come to some of our later meetings.

After the talk a business meeting was held and plans were discussed for the formation of a weekly class on practical plating. Mr. Lyle Williams was elected chairman of a committee to outline a course of study and make arrangements for instructors. This should be a very interesting course. An outline will be submitted to all the members of the Anderson Branch as soon as it is completed.

With no further business the meeting was adjourned.

OTTO W. MCCALLISTER, *Sec.-Treas.*

Milwaukee Branch. The two hundred fourth regular meeting of the Milwaukee Branch was held at the Republican Hotel on January fifth.

President Jack Geissman has recovered from his illness and was back with us.

Our attendance makes it appear that changing the meeting nights to Friday was a wise move. Several of our out-of-town members who do not feel they can come in during the middle of the week were here.

The resolution of Philadelphia Branch which appears in the December REVIEW was read, and after some discussion was laid over for action at the February meeting. This resolution should be read by all members, and then they should come in February prepared to discuss the matter, as it is quite important, and the action of the Branch will be the instructions given to our delegates to the Dayton Convention.

Mr. Hamilton A. Pinkella of Kearney Trecker Co. was initiated as an associate member. Ray Goodsell acted as initiating officer, and Rodney Olsen as sargeant-at-arms.

Plans for the Annual Educational Meeting and Banquet at the Hotel Schroeder on April sixth are shaping up nicely. Be sure to keep that date open.

DEXTER F. RHODES, *Secy.*

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3.6—5.0 (nickel)	8.2— 9.7
3.7—5.3 (zinc)	9.2—11.0
1.9—3.4 (copper, nickel)	(brass, copper, silver)
0.9—1.5 (copper, etc.)	11.0—13.5 (Cadmium, zinc, tin and cleaners)

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Bridgeport Branch. The regular meeting of the Bridgeport Branch was held Thursday, January 4, 1940, in the Chamber of Commerce Rooms, Stratfield Hotel.

The Sick Committee reported George Karl as being quite ill the past two or three weeks. The application of Ralph M. Sasso was accepted. Frank A. Singer and Knute Nelson were elected to membership. Clarence Helmle reported progress regarding the Branch Paper.

An open meeting has been tentatively arranged by Librarian Clarence Helmle for Friday, January 19.

Walter Meyer's motion to hold an Old Timers' Night was unanimously carried. The President appointed Joseph Sterling as chairman, assisted by Axel Boggild, Clarence Helmle, and Walter Meyer. This is to be held on the next meeting night, Thursday, February 8, the meeting night having been changed from the first to the second Thursday.

President William Ehrencrona turned the meeting over to Librarian Clarence Helmle who held a Question Box session.

Q. Would a solution made with a highly soluble salt at a concentration of 30 *gms./l. suffer in drag out at twice the rate of one made up at* 15 *gms./l., conditions being identical?*

A. Slightly more.

Q. How to eliminate anode polarization in a Rochelle Salts solution?

A. Graham says better results are obtained with 5 oz./gal. carbonate.

Q. Suggestions for a good pickle for case hardened cold rolled steel especially on parts that are partly immersed in cyanide vat. Scale difficult to remove without taking out case which may reach a depth of .003.

A. Bullard Dunn Process suggested.

Q. Is there a good strip for stripping copper off die castings?

A. Sod. Thiocyanate, make work anode.

Q. Is there any advantage filtering chrome bath?

A. No.

Q. Is high speed copper better than ordinary copper on die cast parts?

A. No ventilation required, must strike, may get peeling if strike in high speed; with reclaimed rinse may be cheaper than Rochelle; good throwing power; good for die cast going in bright nickel; equipment cost more; requires rigid control.

Meeting adjourned about 10:30 P. M.

EUGENE PHILLIPS, *Secy.*

Detroit Branch held its January meeting at Hotel Statler on Friday night, January 5.

Mr. Maurice Caldwell came all the way from Grand Rapids to personally present the invitation to attend the Third Annual Banquet of Grand Rapids Branch to be held January 20.

When Mr. Floyd Oplinger is the speaker the members turn out, as Floyd always has something worthwhile for them. This time his subject was "The Cleaning of Die Castings," and the slides and statements made showed a great amount of preparation. Most interesting were the colored slides taken

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at 250 magnifications showing the diffusion layer, copper plate and nickel plate. The main point in Mr. Oplinger's talk was that blistering upon heating is caused by improper cleaning which is apt to be overcleaning. A very mild cleaner of low concentration of soda ash and trisodium phosphate gave best results, and the least diffusion layer, but the research was carried out using direct current.

The next Detroit Branch meeting will be held Friday, Februray 2, when Mr. W. G. Shrane, of General Electric Co., Bridgeport, Conn., will present motion pictures to illustrate his talk, "Increasing Material and Labor Utilization Through Sprayer Technique."

Cleveland Branch. The regular meeting of the Cleveland Branch was held Saturday evening, January 6, 1940, in Parlor 34, Hotel Cleveland. A nice crowd was on hand in spite of the cold weather.

The application of Mr. Louis Piovarcy for active membership was received and referred to the Board of Management. Mr. Piovarcy is employed by the Murray-Ohio Co. of Cleveland.

Mr. Bernard John Kubrak was elected to active membership. Mr. Kubrak being present, offered a few words of thanks and was welcomed into the Branch by President Matts.

Mr. Svenson made a brief report for the Membership Committee. This committee isn't saying much, but the results show that they are pegging right along.

The subject of meeting night came up under Unfinished Business and it was decided that as only forty-five out of seventy saw fit to return their cards, and as first choice was a tie, the matter be considered closed and the meetings continue to be held on the first Saturday of each month.

Mr. William Phillips of the General Motors Corporation gave an exceptionally fine talk on his trip to Europe. Some very interesting differences in plating practices were discussed.

It was announced that Mr. George B. Hogaboom, of the Hanson-Van Winkle-Munning Co. would speak on "Some Overlooked Problems in the Plating Room" on February 3.

P. R. LYONS, *Secy.*

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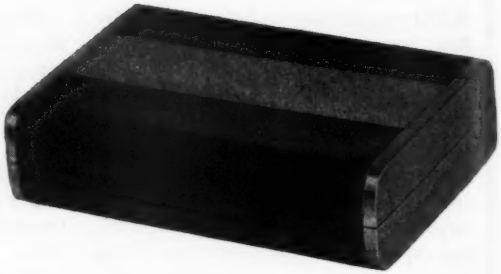

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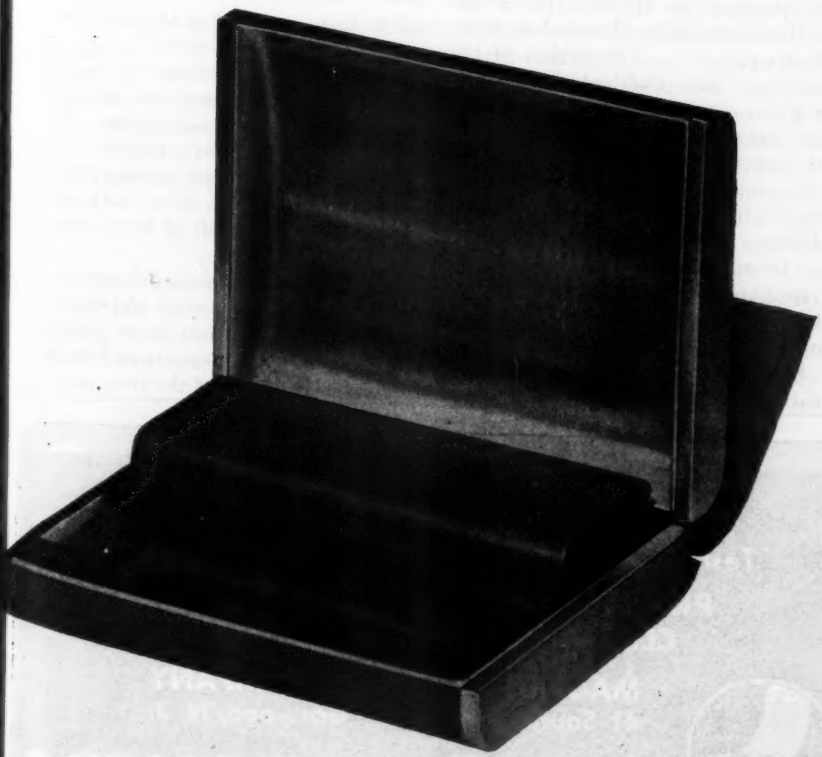

Springfield Branch. The regular monthly meeting of the Springfield branch was held at the Hotel Charles on Monday, December 18, at 8:00 P.M.

The meeting was called to order by President Costigan. The minutes of the previous meeting were read and approved. An application for active membership from Mr. Thomas Murdoch, Kilsyth, Stirlingshire Scotland was read and accepted. The secretary announced that Mr. William Phillips of General Motors Corporation will be the speaker at the next meeting on January twenty-second.

Mr. William Seidel then presented the speaker of the evening, Mr. George B. Hogaboom of the Hanson-Van Winkle-Munning Co. The subject of his talk was "Some Overlooked Problems in Electroplating." Mr. Hogaboom's talk was a comprehensive summary of the history of electroplating coupled with our present ideas and the probable trend of future developments in electroplating. The talk was so interesting and thought-inspiring that a few paragraphs are given to summarize some of the most interesting points brought out in the talk.

Recent developments in high-speed plating have made commercially possible the deposition of zinc on wire (bethanizing) at 1000 to 2000 amperes per square foot and on sheet at up to 650 amperes per square foot. Tin is being deposited at 400 to 600 amperes per square foot, nickel at 400 amperes per square foot and 800 to 1000 for building up heavy deposits.

Minimum thicknesses of electrodeposits should be specified instead of the former method of average thickness. It is essential to know where and under what conditions a plated part will be used in order to estimate its life under these conditions. A nickel coating .001 inches thick will stand up three years at State College while the same thickness will be badly corroded at the end of six months in Philadelphia, Pa.

Mr. Hogaboom described at length the effect of plating conditions on both anode and cathode polarization. He told us that the analysis of the products formed on a nickel anode during polarization varies from 38% nickel oxide and nickel peroxide at a pH of 5.8 to none at a pH of 1.2 to 2.0.

Mr. Hogaboom explained how solution resistance, poor contact and similar electrical difficulties can cause double plate, peeling, dark deposits and other troubles. He described the tong.tester

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and explained its use in locating current drop and poor distribution.

The shortcomings of the present-known methods of measuring throwing power were given. Because so many factors must be considered in making throwing power measurements it is not expected that a practical universal method will be found. According to Dr. Kasper's figures the optimum distance from anode to cathode required to afford best throwing power is about two and one-half times the depth of the recess. Tests have shown that this distance may be increased greatly without any appreciable increase in throwing power.

The thought and interest which Mr. Hogaboom's talk aroused was clearly shown by the numerous questions which were fired at him.

Mr. Hogaboom was given a rising vote of thanks.

The meeting was adjourned at 10:00 P. M.

D. S. HARTSHORN, JR., *Secy.*

Buffalo Branch. The first meeting of the year was held at the Bailey Bowling Academy on Friday, January 12, with President Joe Ruff in the chair.

The minutes of the previous meeting were approved as read. A brief financial statement was read by our treasurer, Mr. A. Boy.

Dr. Wernlund then introduced the guest speaker, Mr. G. Soderberg, the subject of whose talk was "Bright Nickel."

In opening, Mr. Soderberg created good humor by inferring that he was aware that he was only the excuse for the fish fry and refreshments that were to follow. As the evening wore on, it transpired that the fish fry became a secondary thought as evidenced by the interest shown in his talk. Mr. Soderberg eventually had to remind the members that it was time to eat.

With very little notes, he proceeded to give a very comprehensive discourse on bright nickel. Briefly it was divided under two headings, "Properties of Plate" and "Conditions of Operation." Under the former heading came corrosion resistance, porosity, and ductility. Bright nickel could be made more or less resistant to corrosion than white nickel, as desired. Porosity presented no great problem and could be easily corrected by the addition of non-pitting agents. Pitting was usually

caused by carbon in the solution and too low anode area. There was much variation in the ductility of bright nickel. High temperature and less brightener could produce a plate ductile enough to stand punch and light bending operations. The lining of tanks could be a source of trouble and care was necessary in the selection of a suitable rubber for this purpose.

In the operation of the bright nickel tank current density offered much latitude. Forty amps./sq. ft. could be taken as a safe average but instances were known of a hundred amps./sq. ft. being successfully used. The other important factors were the conductivity and the nickel and chloride content of the solution. Evaporation of the brightener was present at 125° F. and the linings of the tank were prone to deterioration at high temperature. Provided the bottom of the tank was kept free from work, zinc contamination was negligible.

There was very little difference in the cost of the various bright nickel solutions on the market. Mr. Soderberg spent as much time in answering the questions as he had given to his subject.

Mr. Soderberg was given a rising vote of thanks and on his suggestion, the almost forgotten fish fry was served, concluding a very educative and enjoyable evening.

RODERICK MCGHEE, *Secy.*

Waterbury Branch held its regular January meeting at the Hotel Elton on Friday, Jan. 12. This proved to be the most popular meeting so far this winter with about seventy in attendance. About 25 members attended the "get acquainted" dinner just before the regular meeting, at which the guest speaker was entertained.

The meeting was called to order at 8:00 P. M. by President Candee who announced that Waterbury had been selected as host for the regional banquet of the Springfield, Hartford, New Haven, Bridgeport and Waterbury Branches to be held at the Hotel Elton on Saturday, April 27. Joseph Downes, second vice-president of the National Society, gave some details regarding the plans for this regional meeting. Mr. Candee then called on Dr. George Dubpernell who reviewed briefly the recent publication of our society (jointly with the American Society for Testing Materials) on "Tentative Specifications for Electrodeposited Coatings on Steel."

Earle Couch was appointed technical chairman for the evening and, after demonstrating a money making machine of his own, he introduced (at great length) Mr. T. F. Slattery of the Bureau of Engraving and Printing, Washington, D. C. Mr. Slattery described the methods that have been used in printing currency, stamps, bonds, etc., from Colonial times to the present. Starting with engraved wood plates and later using engraved copper and steel plates, until today all currency, stamp and bond printing plates are made by electrolytic reproduction. After depositing .010" of ductile nickel the plate is backed with 0.195" of iron electrolytically deposited. The iron solutions are run hot and used to be very objectionable because of fumes. This objection has been overcome by floating a mat of three-quarter inch rubber cubes on the surface of the iron solutions. This not only overcomes the spray but also greatly reduces heat losses and evaporation. Mr. Slattery illustrated his talk with slides showing the various departments connected with the printing of currency, stamps, etc., and the specialized equipment developed for this purpose.

After answering a number of questions the speaker was given a vote of thanks by those present.

The meeting adjourned at 10:45 P. M.

GEORGE MUSCIO, *Secy.*

Chicago Branch. The regular monthly meeting of the Chicago Branch was held on January 13, 1940, President J. W. Hanlon presiding and all other officers present. Applications of L. H. Larsen, C. Germaine, and A. Pochowicz were elected to membership.

Mr. Gilbertson reported that everything was in readiness for the Annual Banquet. Mr. Weickmann described the papers to be read at the Educational session.

The following questions were in the Question Box.

Q. How can the pH of a brass solution be lowered?

A. By using sodium bicarbonate.

Q. Why does chrome plated cast iron discolor when enameled at 300° F?

A. It was suggested that the oven be ventilated better.

Q. Is it advisable to use caustic soda in a cold cyanide copper solution in which die castings are being plated?

A. It can be used but not advisable if the plate is to be oxidized.

Q. What is the best pH range for brass plating of cast iron?

A. This question caused some discussion in which it was suggested that for plating on cast iron the pH was not as important as when plating for rubber adhesion.

M. H. LONGFIELD, *Secy.*

Los Angeles Branch of the A.E.S. held their regular monthly meeting December 13, 1939, at the Rosslyn Hotel at 8 P. M., President Ray Bray presided. The minutes and financial report of the previous meeting were read and accepted. Bills were read and ordered paid.

Mr. H. G. Martin, chemical engineer in the Filtration and Filler Department of the Johns Manville Company, presented an interesting and educational topic — "Modern Methods of Filtration." This address was illustrated with a forty-five minute talking picture titled, "Celite, the Story of the Diaton." Both speaker and picture were enthusiastically applauded.

Second speaker of the evening was Mr. W. W. Broughton of Morris P. Kirk & Son, whose topic was "Die Castings." Mr. Broughton is well qualified to talk on this subject, having been associated with the New Jersey Zinc Company for many years.

Don Bedwell was appointed as chairman of the committee to handle the details of our spring educational session.

The application of Mr. Anthony J. Schullo of the Hall-Mack Company for active membership was read and turned over to the Board of Managers. Mr. Ernest Lamoureux headed a membership drive with the statement that he would bring two prospects to the next meeting. The following members also agreed to bring in prospective members: Mr. Rynkofs, two; Mr. Kroesche, one; Mr. Vensel, one; Mr. Eldred, one; Mr. Schlinder, one; Mr. Williams, one; Mr. Rushton, one; Mr. Holman, one; Mr. Bedwell, one.

The following was found in the Question Box—

Q. Would like some information concerning the pickling of 18 *and* 8 *stainless steel.*

A. To pickle, use either 25%-38% Baume nitric acid and 2% hydrofluoric acid or 20% nitric and 2% hydrochloric acid. The solutions should be heated to temperature of 140° to 180° F.

The first formula containing hydrofluoric acid attacks the metal much less

than the second, and as a rule produces a whiter finish. Second formula gives a higher luster but produces a heavy loss of metal.

Meeting adjourned at 11 P. M.

RAYMOND SOLIVAN, *Sec.-Treas.*

Boston Branch met Thursday the fourth at the Manger Hotel, Boston, with President DeLorme in the chair.

The following were accepted for membership: Bruce Warner, Joseph Hughes, Leslie Guilford and Raymond Gosselin.

Colgate Gilbert named his committee for the coming banquet, the date to be set in one week: C. O. Hardy, H. Lack, E. DeLorme, A. Collins, W. Jones, A. Blake, T. Barron, E. Jeveli, W. Bullard, R. Magnuson, and A. Garrett. They will meet January thirteenth.

A report on the chemistry class was by the chairman but as it will not start before spring all members wishing to join should write to Louis V. Gagnon, 286 Beacon Street, Somerville, Mass., and he will give all the information about the class. The librarian being absent a discussion of the coming banquet was continued for more than an hour, the meeting adjourning at 10:30 P. M.

A. W. GARRETT, *Secy.*

Cincinnati Branch. The regular monthly meeting of the Cincinnati Branch, American Electroplaters' Society was held in the Hotel Metropole, Thursday evening, December 21, 1939, at 8:00 P. M.

The topic of the evening was "A Talk to the Plater on Solution Analysis," and was given by Mr. Owen T. Towner of the Cincinnati Branch. Each member was given a copy of this talk. The copies were printed through the courtesy of one of our members, Mr. George C. Hillenbrand.

Mimeographed copies of a talk by Mr. Frank Nordmann, of the Cincinnati Branch, which was given at our November meeting, were distributed at this meeting.

The members of this branch are looking forward to our next meeting which will be held February first, 1940. Our guest speaker will be Mr. George B. Hogaboom, and his topic will be "Some Overlooked Problems in Electroplating."

MARTIN GANNON, JR., *Rec. Secy.*

Toledo Branch. The meeting of December 7, was called to order at 8:20 P. M. by the president, Mr. Victor Miner. Minutes of the previous meeting were read and approved.

The social meeting scheduled for December 15, was postponed until sometime in January, because of another party, sponsored by Mr. Victor Miner.

Mr. Stanley Moore was asked to make the necessary arrangements to have the REVIEW sent to the Toledo Public Library each month, and to have copies of the REVIEW filed for several years back.

At this time the chair introduced the speaker of the evening, Mr. Belke, president of the Belke Mfg. Co., who read a very interesting and practical paper on rubber rack insulation, and rubber tank lining. At the close of the talk the speaker was given a rising vote of thanks for his kind generosity in appearing on our educational program, for giving us the benefit of such a splendid paper, and for the pleasure of having him with us. There being no further business before the meeting, it was adjourned at 10:20 o'clock.

GASTON BERGEMAN, *Secy.*

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Phialdelphia Branch held its regular meeting at Harrison Laboratory, University of Pennsylvania. The meeting was called to order by President Underwood.

The librarian introduced Mr. Philip Uhl, the oldest member of the branch and an honorary member of the Supreme Society. Mr. Uhl gave a brief resumé of his entrance into the electroplating field, recalling the knowledge he received as a member of the A.E.S. He completed his address by urging all those present to boost the membership of the branch.

Mr. Leroy Beaver, another of our members, was introduced as the speaker of the evening, his subject being "Barrel Burnishing." He delivered a very interesting address displaying samples of the materials used and the various articles burnished. A discussion followed the talk after which Mr. Beaver was given a rising vote of thanks.

A communication from Dayton Branch was read. A letter from Mr. Boethke was also read, which the secretary was instructed to answer. The branch was notified of the death of Mr. J. Moyer. The secretary was asked to send the family of the deceased a letter of condolence. Owing to some misunderstanding it was stated that the Research Committee got the impression that Philadelphia Branch favored research on bright nickel. This is incorrect.

A vote of thanks was extended to Al Hirsch as chairman of the Branch Research Committee. J. L. Nelson, chairman of the Banquet Committee, gave an interesting report and thanked the members and friends for their cooperation. Mr. Critchfield asked the members for their approval and support in organizing a branch of the A.E.S. at Lancaster. It was voted to comply with Mr. Critchfield's request. Mr. C. Brubaker was reinstated as an active member.

It was voted to extend a vote of thanks to the Banquet Committee consisting of John L. Nelson, chairman, George Gehling, Ray Eckert, and also to Dr. A. K. Graham, chairman of the Educational Session.

The next meeting will be held on January 26, 1940, at Harrison Laboratory, University of Pennsylvania, 34th and Spruce Streets.

R. E. JACKSON, *Secy.*

Rochester Branch. On Friday night, December 15, the Rochester Branch held its regular monthly meeting at the Seneca Hotel. We had as our guest speaker, Mr. L. C. Butterworth, chemist of the Jamestown Wood Finishing Co., Jamestown, N. Y. Mr. Butterworth chose as his topic, "Organic Metal Finishes," a subject containing a vast amount of interesting data for metal finishers. Mr. Butterworth was besieged with a large number of questions after his talk, all of which he answered to everyone's satisfaction. He was then given a rising vote of thanks for an interesting and educational address. We all sincerely hope to see and hear more from Mr. Butterworth in the near future. The application of Mr. Joseph J. Duffy, Jr., for an associate membership was then read and ordered published. The meeting was then adjourned.

JUDSON R. ELSTER, *Secy.*

St. Louis Branch A.E.S. held its regular meeting Friday, January 12, at Central Y.M.C.A., dinner was served for twenty-eight members.

In the absence of President Lubker, Vice-president Humbrecht called the meeting to order. Roll call of officers showed three absent.

Minutes of previous meeting were read and approved.

A letter in the form of an invitation was received from Chicago Branch to attend their meeting and dinner dance January 27. Thanks, St. Louis will be represented.

Letter also was read from the Boston Branch.

Two were elected to membership. Robert Bray, Duncan, Okla., Associate; Chas. A. Schmidt, St. Louis, Mo., Associate. The applications of Rutherford M. Errington, and Jack Templeton Leick, were received.

There being no further business the meeting was turned over to Librarian J. Vogt, who introduced the speaker, Mr. Swain of the Pennsylvania Salt Co. who gave a very educational talk on cleaning of steel. He answered all questions that came his way.

After discussion, a rising vote of thanks was given Mr. Swain. Hope to have him again.

Mr. Musick then made a few remarks about the convention to be held in Dayton, urging all to save their pennies and attend. Meeting adjourned.

CHAS. T. MCGINLEY, *Secy.*

Toronto Branch held its regular meeting on January 5, at the King Edward Hotel with a good attendance, President Acheson in the chair and Harry Bird acting as vice-president. Our secretary, Allen Byres, was reported sick and Jim Graham took care of the secretary-treasurer end of the meeting. He is known as versatile Jim, always ready and willing to fill any gap of the Branch.

After the regular time of business one application for membership was received and the application of Mr. Percy Corkfield was balloted on and received into membership. Mr. Corkfield is with the Canadian General Electric Co. and in continuous touch with Mr. Allen Byres — he should prove a real asset to the Toronto Branch. A letter was read from Mr. Gordon of Kitchener and we hope to have a visit from him in the near future. Thank you for your letter, Mr. Gordon.

Next on our list was good and welfare and our chairman called on Mr. Arthur West of the Hanson-Van Winkle Co. to give a paper and talk on "Anodic Method of Cleaning Metals." At this point Mr. West stated he had a cold and Mr. E. Chrighton of the same company read the paper. After the paper Mr. West forgot he had a cold and woke right up to the occasion when questions demanded answers. Samples were passed around with Mr. Acheson asking each plater how the cleaning was done in the individual shop. This became very interesting as some of the platers had the same method as Mr. West suggested, most of the platers used the Cathodic method, while others used both, with a few just using plain hot cleaner. Mr. West's explanation of the Cathodic film left on the work without the Anodic treatment was an interesting confirmation already in the mind of the platers. This certainly was an interesting and worthwhile evening. Mr. West received a hearty vote of thanks and was reminded by the president to come again and bring Mr. Chrighton with him. Thank you, Mr. West and Mr. Chrighton.

Harry Hands paid us a visit from Watford, Ontario, and the members were glad to see him. It was agreed unanimously to pay as we go and to pay discount on per capita tax as it becomes due.

The old committee of Charlie Kemish, Jim Graham and Tom O'Keefe was assigned to work on the annual card party to be held in March.

President Acheson reported Walter Barrows had been in the hospital for eleven weeks and was glad to report that Walter was a little better. Meeting adjourned 10:30 P. M.

J. S. CAIRNS, *Rec. Cor.*

Newark Branch. The regular meeting of the Newark Branch, A.E.S. was held on Friday evening, December 15, at the Club Room of the Hotel Douglas, Newark, N. J. Meeting was called to order at 8:45 P. M.

Due to the absence of our president, John Kotches, Paul A. Oldam was appointed president pro-tem for the evening. Other officers present were George Wagner, secretary; Nelson Sievering, treasurer; Stephen Leshnick, sergeant-at-arms; George Reuter, Harmon S. Hunt and William Harrison, trustees.

A communication from Mr. Charles Proctor was read and his request was complied with promptly at 9 P. M. when all the members rose for one minute of silent prayer in memory of our departed fellow member, Oliver J. Sizelove.

Communications from Oakite Products Co., Udylite Corp., Detroit Rex Products Co., and Mr. Charles Proctor, expressing their appreciation of receiving "Convention Certificates," were read and placed on file.

As this meeting was followed by a Christmas Party in conjunction with the Ladies Auxiliary, all other rules of business were dispensed with. Meeting adjourned at 9:30 P. M.

GEORGE WAGNER, *Secy.*

Newark Branch meeting of the A.E.S. was held on Friday evening, January 5, at the Club Room of the Hotel Douglas, Newark, N. J. The meeting was called to order at 8:30 P. M. with President John Kotches presiding. Other officers present were: Jack Shamis, vice-president; George Wagner, secretary; William Harrison and Harmon S. Hunt, trustees.

A communication from the Picatinny Arsenal was read and the secretary was instructed to answer same and comply with their request. A letter from Mr. Edward E. Criss was voted to be filed. A communication from Chemical Industries was read and discussed and it was decided to turn the letter over to the Supreme secretary.

An application for Mr. Laurie Salerno to Associate membership was voted to take the regular course.

Mr. Adolph Bialecki was then elected to Associate membership.

Mr. Wagner, chairman of the Newark-New York joint affair, stated that there would be a committee meeting of the joint committees on January 19, at 7 P. M. at the Hotel Douglas and that all committee members would be notified to that effect.

Due to the absence of our librarian, our president acted in his behalf and presented our guest speaker, Mr. Philip Sievering who had a very severe cold, but nevertheless like a good trouper, he went on with his talk. His subject was "Electroplating and its Progress." Mr. Sievering had covered the whole blackboard with names of chemicals, which were used for nickel plating alone, as far as sixty years back. He proved to us that these same chemicals are being used today and that the only difference is that the plater of today has methods of keeping control of these chemicals which the plater of years ago could not obtain. After the address Mr. Sievering was given a rising vote of thanks. Meeting adjourned at 10:45 P. M.

GEORGE WAGNER, *Secy.*

Wing Your Way to Dayton
the Birthplace of Aviation

Pittsburgh Branch held its regular meeting Friday evening, January 5, at the Bureau of Mines Building. Due to very cold weather, there were few members present and the business session was omitted.

Mr. Wm. M. Swain, technical expert of Penn Salt Division of Pennsylvania Salt Mfg. Co. read a short paper on "Chemicals in Metal Cleaning." His paper was very well received and a short discussion followed.

Mr. Ted Hayward, chief chemist of the Natrona Works of the Pennsylvania Salt Company, assisted by Mr. Jim Kerns, presented a novel entertainment of chemical magic. Their tricks were mystifying and very entertaining. One of the most interesting tricks consisted of pouring two glasses of "water" into a pitcher containing a coin and the immediate disappearance of "water" and coin.

Mr. Saylor of our Branch entertained the Branch for nearly an hour with his selections on the violin. Mr. Saylor was accompanied by Miss Haser on the piano. We were all surprised by Mr. Saylor's talent on the violin and wondered if he had taken up the wrong career.

The next meeting will be held on Friday, February 2, at which time Mr. R. L. Lunt will give a talk. The meeting was adjourned at 11:00 P. M.

FRANK R. KELLER, *Secy.*

MEETING OF THE RESEARCH COMMITTEE, AMERICAN ELECTROPLATERS' SOCIETY, DETROIT, MICHIGAN, DECEMBER 9, 1939

The meeting was called to order by Mr. A. B. Wilson with Mr. E. A. Anderson acting as secretary. The following members were present:

A. B. Wilson	E. S. Taylerson	B. H. McGar
C. E. Heussner	Erwin Sohn	T. F. Slattery
F. C. Mesle	E. T. Candee	E. A. Anderson

Mr. Wilson opened the meeting with a general resumé of suggestions for research projects which had been made. Of these the ones receiving the most attention from the Committee were those made by Pinner and Baker involving the studies of the effects on plated coatings of polishing steel with various sizes of abrasive. This led to a discussion of the relative surface and subsurface characteristics of rimmed and killed steel and of hot rolled versus cold rolled steel. Some discussion was had of the types of defect which might be found in rolled brass and of the effect of unrelieved stress in brass on plated deposits.

It was the general opinion of the members of the Committee that it is inadvisable at this time to enter into any project of studying the defects in metal surfaces or of attempting to specify a standard acceptance test for metal surfaces. It was felt more appropriate to enter into a study of the effects of polishing, buffing and cleaning operations on plate quality using, if necessary, a statistical study of a large number of samples to estimate the influence of base metal variations. It was also agreed that the work on ferrous materials should be limited to low carbon steel of the type commonly used for stamping. Rolled brass and zinc alloy die castings should be included in this work. It was felt, in the absence of needed short-time quality tests, that exposure tests at two locations, such as New York City and a northern sea-coast location, would be advisable.

Following the discussion Dr. Heussner moved that a program be laid out to cover an investigation of suitable preparation of metals for plating. This motion was passed unanimously. Dr. Heussner then moved that the Committee start work on the development or correlation of continuity or corrosion tests of zinc and cadmium coatings on steel, nickel and chromium coatings on brass, and nickel and other platings on zinc base materials. This motion was passed

unanimously and in the discussion which followed it was definitely agreed that this work would be subordinated to the first program.

The Committee agreed definitely that work on the testing of various bright nickel deposits was inadvisable.

A discussion was had as to the proper place to have the work conducted. A motion by Mr. Sohn, seconded by Dr. Heussner, that the work be done at the Bureau of Standards under the direction of Dr. Blum was passed unanimously. Some little discussion was had of the possibility of getting some of the more fundamental problems under investigation by college laboratories. In this connection Dr. Heussner, as secretary of a committee on research projects for colleges, requested that anyone having ideas on suitable problems get in touch with him.

It was agreed to distribute the revised tentative specifications through supply houses and other contributors to the Research Fund who may desire to take such action. A discussion was had of whether or not the new research program would be subject to A.S.T.M. acceptance. It was agreed by the Committee that the work planned was strictly an A.E.S. project. However, a motion by Dr. Heussner that representatives of Committees A-5, B-3 and B-6 be invited as observers was passed unanimously.

Dr. Sohn moved that a subgroup consisting of Messrs. Wilson, Heussner and Anderson be instructed to select a research associate, subject to approval by the Research Committee and Dr. Blum. This motion was passed. Mr. Wilson appointed a committee consisting of Messrs. Anderson, Sohn, Taylerson, Candee and Heussner to devise a detailed program from the broad outline accepted by the Committee. It was agreed that the Committee would meet again on February 3, 1940, at Washington, D. C.

Some discussion was had of the project of preparing a data sheet booklet similar to the Metals Handbook but devoted to finishing. It was agreed that the responsibility for such a book should reside in a separate committee of the A.E.S. and action will be taken by the chairman along these lines.

E. A. ANDERSON, *Acting Secretary.*

PARTY COMMENTS FROM A SOBERED HOT NOSE REPORTER

First of all, orchids, bouquets, salutations, congratulations and everything else to the committee which handled the arrangements of the annual banquet of the Detroit Branch of the A.E.S. on December 9. The dinner was excellent, the entertainment ditto, in fact, your correspondent raved over everything before he got a snoot-full. In fact, everybody did.

For the benefit of those who passed out at 6.49 P. M. this is what happened:

7.00 P. M.	Dinner
7.01	Carl Huessner was eating.
7.10	Higgins was lost.
7.11	"Where's Bill Phillips?"
7.14	Fred May peeved about remarks concerning his golf game.
7.15	Most everyone eating, at least those that could.
7.18	"Has anyone seen Cleve Nixon and Eddie Fritz?"
7.19	Phil Brockway looks for prize for best dressed man.
7.20	Dinner now under way.
to 8.00	Waitresses on the run.
8.10	There's Floyd Oplinger, again.
8.30	Floor show which features Mrs. Paul Amundsen's daughters who did some mighty fancy stepping. Cute kids, too.
9.45	"They're all up in 1434."

Distinguished out-of-town guests that the reporter noticed (There were probably twice as many that were missed because—): Supreme President W. Goodsell, Executive Secretary W. J. R. Kennedy, Supreme Vice-president Joe Downes, Supreme Vice-president and Mrs. Fulforth, Supreme Vice-president Nelson Sievering and Mrs. Sievering, Thomas Slattery, Dr. A. Kenneth

Graham, Dr. Colin G. Fink, Frank Mesle, Ben McGar, Erwin Sohn, E. T. Candee, E. A. Anderson, E. S. Taylorson, Mr. Crittenden, Mr. Nagle, Joe Nook, Mr. Sherrod and Mr. Ford.

Mr. and Mrs. A. Payson of the Virginia Paysons attended the party. The committee is very grateful for Mrs. Payson's presence inasmuch as Mr. Payson behaved himself thoroughly since Mrs. Payson accompanied him. We all missed Jim Stewart, the Duke of Bronson, and his bodyguard J. Wallingford Humphrey.

Ed Berry wishes to thank his friends for reminding him that his suit had to be returned by 12 o'clock. To relieve everyone's mlnd, the suit arrived safely at 11.59 thereby saving his company an extra rental charge. Speaking of suits, Webb Knight attended, standing out in the crowd by virtue of his plug hat and tails. We don't know about the suit, but Webb almost lost the hat.

Carl Heussner brought Mr. Jim Klinger, to show Jim what nice people he associates with. Mr. Klinger reports he still is undecided as it seems all the members he met had their wife's sister with them. No platers' party is ever complete without Max Wise and his charming wife. They were there. Those who missed Mrs. Glen Friedt will be glad to know that Mrs. Friedt is recovering nicely from her illness. While Mr. Christiansen, Ainsworth vice-prexy, is not actively engaged in A.E.S. affairs everyone was glad that he and Mrs. Christiansen attended the party.

Mrs. Paul Amundsen arrived at the party in gay spirits but upon finding out that she had her old shoes on, was very much perplexed. As a matter of fact, it wasn't supposed to be known, but the word got around and she was in for quite a bit of kidding. Our venerable research committee chairman, Red Wilson, certainly looked a picture of life at the banquet. He had on one of those goofy looking Mexican hats and a balloon tied to each ear. Can you picture that?

By order of the committee, all the companies which held open house at the party and engaged rooms for this purpose, closed their doors promptly at 7 P. M. and did not reopen them until the end of the floor show. This meeting was the first one in Detroit in which it was necessary to call in secret service operators to protect the speakers.

We understand that Eddie Baker finally won a bet on the Penn State football team. It has been rumored that Doc Graham paid off his bet to Eddie with five-hundred pennies. It looks like Eddie is going on the copper standard or else is going to use the pennies for copper plating instead of anodes.

Your Hot Nose Reporter was glad to see everybody having a good time, felt a little tough the next day, is still a bit tired and signs off with a Happy New Year to the dozens of readers boasted by this column.

High Lights of Detroit Branch January Meeting

Floyd Oplinger of R. & H. Division, E. I. Dupont de Nemours & Co., came all the way from Niagara Falls just to tell the boys how to clean die castings. All the cleaner salesmen in this territory, we believe, were there to learn how to do the job from Floyd, and he is not a cleaner salesman. We don't know whether he got any offers after his talk or not.

Maurice Caldwell, when giving the invitation to attend Grand Rapids Branch banquet on January 20, tried to make the fellows believe that was his sole purpose in attending the Detroit Branch meeting, but we know he wanted to find out how to clean die castings as well as the rest of us.

It looks as if some of the wives don't trust their husbands because of the Mrs. meeting the Mr. down in the Hotel lobby immediately after the session. The reporter's wife used to do this too, but now she trusts him.

Reports are that Bob Redmond is quite an expert in cooking chicken dinners. In case any girls read this, Bob is a bachelor — need any more be said?

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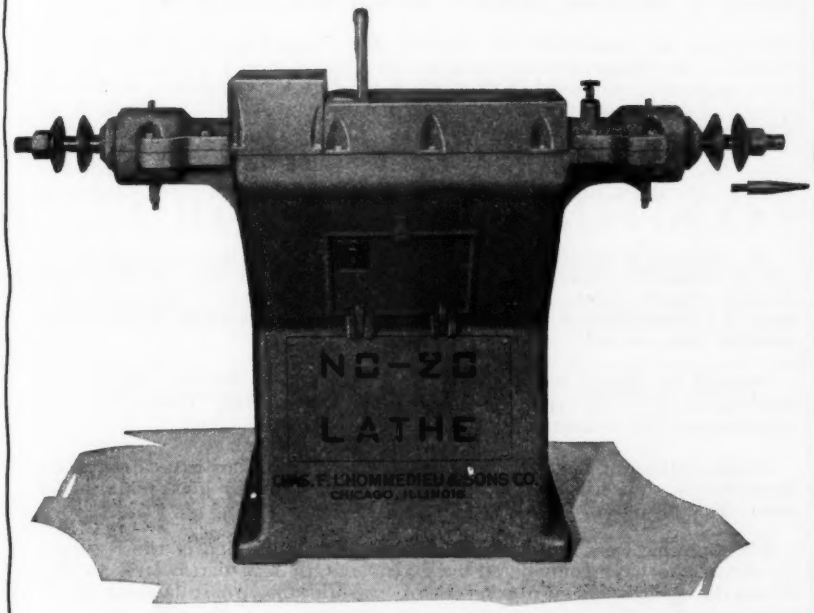

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Here and There

The following Branches will hold their annual meetings on the dates given:

Grand Rapids January 20
Chicago January 27
Boston April 13
Newark-New York meeting March 30

Regional meeting of the New England Branches which includes Hartford, Springfield, New Haven, Bridgeport, and Waterbury, April 27.

We take this opportunity of thanking Mr. Ralph Leguori, president, Mr. Franklyn MacStoker, secretary, and the members of New York Branch for the kind sentiments contained in their letter regarding the executive secretary's office during the past year. Letters such as these are deeply appreciated we assure you.

Our heary thanks is extended to our A.E.S. friends for the many cards sent to us at Christmas time. May the New Year bring happiness and prosperity to all of you.

We notice an interesting item in the Milwaukee news. Mr. Raymond Goodsell, Jr., is following his father's footsteps in becoming a member of Milwaukee Branch. This handsome young man is not only a plater but excels in sports and music. Congratulations, Raymond, you too may be president of the A.E.S. someday like you dad.

Some of our branch secretaries might improve their "batting average" by resolving to send their reports to us more regularly in 1940. There are several defaulters in this connection.

Owing to the war the abstracts from foreign publications have dropped off considerably. We still have many magazines that contain good material for abstracting purposes.

We hope this work will continue for our abstract section of the REVIEW. To those who have contributed we extend our thanks, particularly to Mr. Ernest H. Lyons of The Meaker Company, Chicago, whose faithfulness in supplying us with material is deeply appreciated.

Mr. W. L. Cassell formerly with The Udylite Corporation has joined the staff of MacDermid Incorporated, Waterbury. Mr. Cassell is no stranger in our midst. His face is very familiar at our Branch meetings and conventions.

The Regional Meeting in Waterbury on Saturday, January 6, was a very pleasant affair. Every one of the five branches was well represented. Second Vice-president Joe Downes received the usual good-natured kidding regarding his trip to Detroit and other matters of local interest. Joe came back at his hecklers as usual. Due to his popularity Joe is a big factor in getting things done in the Connecticut Branches. The fine spirit of co-operation shown at the meeting speaks well for a successful gathering at Waterbury, April 27.

Mr. Raymond Solivan, secretary of Los Angeles Branch, writes: "The teacher of the Los Angeles Branch Chemistry Class would like to correspond with other teachers of platers' classes discussing class procedure." Write to Mrs. Shelly, Polytechnic High School, Washington Boulevard and Flower Street, Los Angeles, Calif.

We need more papers for publication in the REVIEW. Members, Branch secretaries and non-members, we will appreciate hearing from you.

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One of the prominent speakers at Branch Meetings is inclined to criticize our members for not discussing their problems at the close of the address. We believe he is right. After all we learn much from discussions and should come prepared to do our part.

NEWS ITEM

The beginning of the present E. Reed Burns organization goes back to the year 1888. In that year, Mr. E. Reed Burns opened on Water Street in Manhattan, under the then new Brooklyn Bridge, a small shop to make Crocus and White Finish for the stove trade to whom he had been selling sheet mica for several years.

The business grew rapidly and four years later he purchased land at 40-42 Withers Street, Brooklyn, New York, and erected a three-story building. By this time the products of the new company included all types of buffing composition as well as polishing wheels and buffs. Until the early twenties a general supply business was carried on, including the sales and servicing of generators and plating installation. During the early 1900's additional property was bought on Jackson Street, running from 21-27, and on this a three-story building was erected.

These two buildings, one on Withers Street and one adjoining on Jackson Street, served as the home office and plant until 1937, when through a condemnation proceeding by the City of New York for a new cross-city boulevard, the major part of the Jackson Street property was taken. The result was that the entire plant was reconstructed, the three-story building on Withers Street being replaced by a modern brick building containing the offices, manufacturing, shipping and receiving departments and Buff and Polishing Wheel Department. Along the new boulevard, 227-239 Meeker Avenue, an extension was built consisting of a modern building adapted for efficient, economical, straight line production.

Before Mr. Burns, senior, died in 1928, he saw his three sons become active in the business. They carry on the enterprise today: Russell H. Burns, president; Herbert R. Burns, treasurer; Lloyd S. Burns, secretary.

Today the production of the company is centered exclusively on buffing compositions, buffs and polishing wheels, producing a quality which has stood the test for more than fifty years.

Sales representatives are located in the following cities: New Haven, Conn.; Buffalo, New York; Pittsburgh, Pa.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Illinois; and Beloit, Wisconsin.

A number of the employees have been continuously with the company for upward of twenty-five years.

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ANNUAL MEETING OF NEW ENGLAND BRANCHES

Representatives of the Southern New England Branches met in Waterbury on Saturday January 6, at the Hotel Elton to formulate plans for a regional spring meeting for these branches as a group. Those attending the meeting were William Ehrencrona, Eugene Phillips and Dr. Walter Meyer of Bridgeport; Apley Austin and Joseph St. Pierre of Hartford; Henry Creamer, Joseph Downes, Tom Chamberlain and Robert Gray of the New Haven Branch; William Kennedy and D. S. Hartshorn, Jr., of the Springfield Branch; Ellsworth Candee, Earle Couch and George Muscio of the Waterbury Branch.

Mr. Kennedy, executive secretary of the Society called the meeting to order. Those present were asked to serve as a permanent committee for the regional meeting. Ellsworth Candee was elected permanent chairman for this committee and George Muscio, secretary.

After a brief discussion it was decided to hold this regional meeting in Waterbury on Saturday, April 27, at the Hotel Elton. For carrying out the necessary work for this meeting the following men were appointed as chairmen of the subcommittees: Publicity — John E. Costigan, Springfield Branch; Hotel, Banquet and Entertainment — Earle Couch, Waterbury Branch; Program — William Ehrencrona, Bridgeport Branch; Educational — Henry Creamer, New Haven Branch; Treasurer and Tickets — Apley Austin, Hartford Branch.

GEORGE MUSCIO, *Secy.*

LOUIS M. HAGUE

Louis M. Hague, vice-president in charge of sales, Hanson-Van Winkle-Munning Company, Matawan, N. J., has had unusually broad production and sales experience in the plating field and is widely known throughout the industry.

After graduation from Lafayette College, Mr. Hague entered the production department of the Rome Wire Company (now General Cable Corporation), Rome, N. Y. From here he went with the firm of Walter E. Hague & Son, Inc., Pittsburgh, electroplaters, where he worked in production, purchasing and sales, eventually becoming vice-president.

In 1928 Mr. Hague went with Hanson-Van Winkle-Munning Company and for the past eleven years has covered a wide range of operations in various territories including: 1928, in charge of sales at Pittsburgh; 1929, district manager at Cleveland; 1930-31, assistant sales manager at Matawan; 1932-34, special sales work in all territories; 1935-38, in charge of sales of buffs, compositions and finishing supplies; 1939, vice-president in charge of sales and a director of the company.

Mr. Hague is a resident of Rumson, N. J., is active in municipal and social affairs in that community, and is a member of various clubs and associations both within and outside the plating industry.

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A NEWS LETTER FROM THE NEW HAVEN BRANCH

The fourth lecture of the course in metallurgy conducted by the New Haven Branch of the A.E.S. was held Tuesday evening, December 16, at the Sterling Chemistry Laboratory of Yale University. Mr. L. W. Thelin, metallurgist at the Chase Brass & Copper Co., and instructor of the class gave a very interesting and informative talk on "Casting Shop Practice."

The attendance at all of the lectures thus far has been most gratifying and a great deal of interest has been evidenced. An outline of the topics which the course covered or will cover follows:

Lecture No. 1. Introduction:
- Part One—Ore Metallurgy
  - (a) Iron and Steel
  - (b) Copper
- Part Two—Metals and Alloys
  - (a) Fundamental consideration
  - (b) Microscopy

Lecture No. 2. Alloy Systems
- (a) Constitution Diagrams
- (b) Characteristics

Lecture No. 3. Properties of Metals
- (a) Chemical Testing
- (b) Physical Testing

Lecture No. 4. Casting Shop Practice
Lecture No. 5. Rolling Mill Practice
Lecture No. 6. Grain Growth and Recrystallization
Lecture No. 7. Tube Mill Practice
Lecture No. 8. Copper and Copper Alloys
Lecture No. 9. Finishing Brass and Copper Alloys
Lecture No. 10. Nickel and Nickel Alloys
Lecture No. 11. Iron and Steel Alloys
Lecture No. 12. Aluminum Alloys
Lecture No. 13. Fabricating Brass Goods
Lecture No. 14. New Developments in Non-Ferrous Metallurgy

A joint Christmas stag party was held Saturday evening, December 16, by the members of the New Haven Branch and the members of the metallurgy class at the Hejaz Grotto, New Haven, Conn. Charlie Koelbl who headed the committee for the affair did a very fine job. An evening of bowling, pool shooting, guzzling, singing, eating, etc., was enjoyed by all. Charlie had present as entertainers a very clever acrobatic dancer, a fine accordion player, a banjo jazz king and a couple of shapely blues singers who possessed we might say "oodles of oomph"—ask Norman Eddy or Doc Garner. Charlie Koelbl's tickling of the ivories à la Chico Marx was another feature and Doc Kellner, basso, specialized in the crooning of the aria "Pretty Red Wing."

"Dead-eye Dick" Downes, who used the hidden ball play to advantage, copped top honors in the pool shooting after a tough contest with "Hit-em-in-when-they-aint-lookin" Roy Brown.

Tom Chamberlain copped the honors in the bowling by using the following system—If you lose a string, double the bet and play another string. Bob "Carl Hubbell" Mooney had an off night and was eliminated after tossing three straight into the gutter.

Following the banquet itself we had a few words from Bill Kennedy, national secretary of A.E.S.; L. W. Thelin; metallurgist at Chase and instructor of the metallurgy course; Ben McGar, Chase Brass Co.; W. Cady, supertintendent of Yale Chemical Laboratory; Tom Chamberlain, and Henry Creamer, president of the New Haven Branch. Joe Downes as toastmaster did a very fine job.

The next open meeting of the New Haven Branch will be held Tuesday, January 16, 1940, at the Sterling Chemistry Laboratory of Yale University. Mr. Sam Tour, metallurgist at Lucius Pitkin, Inc., N. Y., will give an illustrated lecture on "Electro Polishing."

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This development fills a long-felt need in the jewelry and novelty industry for a standarized gold electroplate. Among its many advantages are uniformity of color, high efficiency, and exceptional throwing power.

Available with this new gold are special reagents for preparing electroplating solutions and alloys for pink, red, and green solution.

W. GREEN ELECTRIC CO. REORGANIZES

W. Green Electric Co., Inc., of 192 Broadway, New York, in the electroplating solution and supply business for over fifty years, has been completely reorganized and is now under new and progressive management. Under the new leadership of Harry A. Einstein, well-known business executive, the firm intends to expand into the field of moderate size electroplating installations and will shortly announce several interesting new developments in plating and finishing solutions and equipment. Their famous Sal-Hyde Electroplating Salts is known wherever fine jewelry is plated and finished, and these new products will match it in quality and performance. They have engaged Joseph B. Kushner, Ch.E., recognized authority on electroplating and metal finishing, as their consultant to handle all their technical developments and to direct electroplating research in their plating and finishing laboratories.

HANSON-VAN WINKLE-MUNNING CO. ADDS TO ITS STAFF

Ellsworth F. Wilson has been appointed to the Engineering Department of the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies.

Harvey K. Hunt, formerly of the Crucible Steel Company, has joined the laboratory staff of the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies.

H. E. Moyer has been appointed sales representative of the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies. He will be located at 4324 S. Normandie Ave., Los Angeles, Calif.

W. W. Wieland has been appointed sales engineer for the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies.

Jack D. Clayton has been appointed sales representative of the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies. He will be located in their Detroit office, 2842 W. Grand Blvd., Detroit, Mich.

Harold R. Smallman who has been for a number of years in charge of the Chicago office of the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies, has been appointed Western Manager for that company.

THE COHAN-EPNER CO., INC., SPECIALIZE IN THE PLATING OF NON-METALLICS

E. Cohan, president of the Cohan-Epner Company, New York, has left for a vacation in Tangerine, Florida, where he will spend a month. This company, which has just completed one of its most successful years, is one of the largest gold platers in the United States, specializing in the plating and finishing of metal novelties and costume jewelry. One of their leading lines is the electroplating of non-metallic objects for decorative purposes, such as wood and composition buttons and ornaments. Mr. Cohan is a past chairman of the Masters' Electroplating Association of New York.

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1800 CONSULTANTS

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Copies of the 1939 Convention Proceedings

We still have a few copies of the 1939 Convention Proceedings left. These will be sold at cost to the Branches for the benefit of newly elected members. The cost to non-members is $5.00.

TRADE NEWS ITEM

W. W. Davidson, vice-president in charge of sales of Detroit Rex Products Company, Detroit, Michigan, has announced the following promotions effective immediately:

H. R. Norgren has been made assistant general sales manager in charge of special accounts; D. E. Williard, assistant general sales manager in charge of regions and branch offices; and R. A. O'Reilly, manager of dry cleaning division.

Sisalin Buff Sections Reduce the Cost of Finishing Aluminum

In a large aluminum processing plant in Detroit, Sisalin Sections are employed with tripoli composition to completely finish heat treated aluminum rods, tubing, and other parts. These sections are made of specially prepared sisal, a tough fibre, interleaved with alternate layers of muslin, bound together by various types of sewing.

By using the Sisalin Sections only the one operation is necessary.

The Sisalin Sections are made by the Hanson-Van Winkle-Munning Co., Matawan, N. J., manufacturers of electroplating equipment and supplies.

Aerial Photo by Mayfield Aerial Surveys, Dayton, Ohio

DELCO PRODUCTS DIVISION, General Motors Corp.
Dayton, Ohio

More and more electroplaters GET RID OF "GHOSTS" with DARCO

The plating industry is buying increasing amounts of Darco, the activated carbon.

Darco removes, bodily and completely, such troublesome impurities as grease, oil, breakdown products of brightening and wetting agents, and decomposition products occasionally arising from vulcanized rubber tank linings. These are "ghosts" that, all unsuspected, ruin many a good plating job.

These "ghosts" give no warning of their presence until they have caused spoiled plating. With Darco on guard, however, they are removed before they can cause trouble. Likewise, shutdowns due to organic impurities in the bath are eliminated.

Darco S-51, especially developed for electroplaters, is packed in convenient 10-lb. and 50-lb. cartons. Write for the name of your nearest distributor, and for a copy of the article — "Activated Carbon in Electroplating Solutions."

DARCO

This trademark identifies the genuine. Accept no packages without it.

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CORPORATION
60 East 42nd St.
New York, N.Y.

ANNUAL MEETING BALTIMORE-WASHINGTON BRANCH AMERICAN ELECTROPLATERS' SOCIETY

The educational session will be held at 2:30 P. M., Saturday, February 3, 1940, in Room 100, Electrical Engineering Building, University of Maryland, College Park, Maryland (ten miles northeast of Washington). Speakers at the educational session include:

1. Mr. R. O. Hull, E. I. du Pont de Nemours & Co., Grasselli Chemicals Dept., Cleveland, Ohio, who will speak on "Black Molybdenum Electrodeposits."
2. Mr. W. B. Stoddard, Jr., of New York City, who will speak on his recent experiences as plating adviser to the Soviet Government.
3. Mr. A. B. Wilson of the Chevrolet Motor Corporation, Detroit, Michigan, who will give an illustrated talk on "Bumper Bar and Anode Manufacture."
4. Mr. W. A. Wesley of the International Nickel Co., Inc., who will speak on the nickel chloride plating bath.

The dinner will be held at 7:00 P. M. at the Lord Calvert Inn, on the Washington Boulevard at College Park.

The ladies will be entertained during the afternoon educational session at the home of Mr. Wilbert S. Ermlich, 56 Pine Street, College Heights, Maryland. An auto will take the ladies from the University to Mr. Ermlich's home.

Baltimore members and guests not having automobile transportation may use the Grey Hound Bus, leaving the depot at 217-221 W. Baltimore Street.

Washington members and guests may use the street car or the Laurel Capitol Transit Bus leaving Ninth and E Streets, or the Grey Hound Bus, which is the best, leaving the depot at 1403 11 New York Ave., N. W.

Both the Baltimore and Washington people can take the B. & O. R. R. to College Park, Maryland.

TRIBUTE FROM PROVIDENCE BRANCH IN MEMORY OF THE LATE DR. STRACHAN

In the death of Dr. Earl Kenneth Strachan the Providence-Attleboro Branch of the American Electroplaters' Society has lost a staunch supporter and each one of its members, a personal friend.

Cheery, democratic, thoughtful, it was a joy to know him, a pleasure to work with him, an inspiration to solve scientific problems under his guidance. Truly did Dr. Faunce once say that "God alone knows when a man's lifework is done," and while we cannot understand the call from Above when, it had seemed to us, many years of usefulness and service were ahead and while we indeed mourn his loss, nevertheless we gladly acknowledge that the world is richer and better, and we ourselves are finer and nobler, because we have been privileged to know and appreciate this leader among men.

And so in our sorrow at his loss we are also thankful for all he has meant to our Branch and its members, and gratefully spread upon our records this tribute to our coworker and friend, Dr. Earl Kenneth Strachan, whose influence and personality will always remain with us.

William F. Cahill
Donald Wood
William H. Hall
John Garrick
James E. Potter
Arthur Wood
Alton Tapner
John MacLean
Robt. D. MacLachlan
Charles C. Chace
Albert W. Claflin, *Chairman*

SILICOSIS

IN THE

POLISHING ROOM

Tripoli, Coloring Compounds and some other buffing compositions are composed essentially of silica in the particle size which causes silicosis.

Recent medical investigations have shown that aluminum dust when present with silica dust prevents silicosis.

It has long been known that the presence of aluminum dust in buffing compounds will aid in cleaning when alkaline cleaners are used. A patent owned by us covers the use of aluminum dust in buffing compounds.

Superintendents, and foremen in charge of polishing rooms, will be interested in this method of reducing their risk without any sacrifice of their composition efficiency.

Those interested should write for further information. A very interesting booklet giving full details will be sent.

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ELECTROPLATERS' BANQUET

The Masters' Electro-Plating Association of New York, held a banquet, entertainment and dance on Saturday, December 16, at the Hotel Delmonico, 59th Street and Park Avenue, New York City. Approximately two hundred people attended this affair which was the largest in the history of this organization.

The purpose of this celebration was to honor Philip Sievering, president of Philip Sievering, Inc., contract electroplaters of New York, on the fiftieth anniversary of his entrance into the plating industry. An interesting feature of the celebration was the fact that it was a surprise party for Mr. Sievering who attended the banquet under the impression that it was just another one of the annual affairs of the Association, but who did not know that it was in his honor until he arrived at the hotel.

The program included a varied group of speakers who related their experiences with Mr. Sievering from different aspects. John J. Forbath of the Grand Chromium Plating Corporation, Long Island City, chairman of the executive committee of the Masters' Electro-Plating Association, welcomed the guests and spoke of his respect and admiration for Mr. Sievering as a competitor. V. W. Todd, president of the Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies, told of his high regard for Philip Sievering as a customer. J. S. Gildersleeve, president of the Golden Gate Mfg. Company of New York, praised Mr. Sievering's reliability and honesty as a supplier. I. J. Liebowitz, who has been with the Sievering organization for over twenty years, called him "Dad."

Dr. Wm. Blum, head of the Electrodeposition Division of the National Bureau of Standards, spoke on "Research and the Electroplating Industry." He stressed the need for and the value of specifications in the electroplating industry and pointed out that Philip Sievering had been one of the leading factors in encouraging research and technical progress in the industry.

These talks were followed by a presentation by Walter Plumacher of Plumacher and Sons, New York City, past chairman of the executive committee of the Masters' Electro-Plating Association, of a most unusual and original gift to Mr. Sievering. The gift consisted of a small handmade brass model of an electroplating tank, about 8 inches long and 4 inches wide, built exactly to scale and joined by tie rods, just like a commercial full-sized plating tank. Designed and built by Carl Hoehl of the National Chromium Corporation, New York, it even included anode and cathode rods, anodes and a rheostat for the control of the current. The whole model was plated with a heavy deposit of gold by one of the members of the Association, the Cohan-Epner Company of New York, and suitably inscribed.

The formal program was followed by a very entertaining exposition of modern magic by George Morrow of the Egyptian Lacquer Manufacturing Company. The balance of the evening was devoted to dancing. The master of ceremonies was Adolph Bregnam, executive secretary of the Association.

The dinner was a gay affair, food and music being interwoven and the guests sang throughout the meal, led by Song Leader Edward McGowan. Music for the dancing was provided by Otto Bender and his "Fashions in Music."

The Masters' Electro-Plating Association is an organization of jobbing and contract plating shops in Greater New York. It was founded in 1917 and its present membership comprises about seventy per cent of the total production of that city. The purpose of this Association is to improve the standards of commercial and technical practice in the industry.

NEW BULLETIN ON ELECTROPLATING RACK COATINGS

WRAP-RAX TAPE. Bulletin WR-101. An improved covering for electroplating racks. A synthetic thermoplastic resin in tape form, resistant to all cleaning, pickling and plating solutions commonly used, including chromium and bright nickel. It contains nothing to contaminate the solution. The Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturers of electroplating equipment and supplies.

Lasalco Burnishing Barrels

V BELTS

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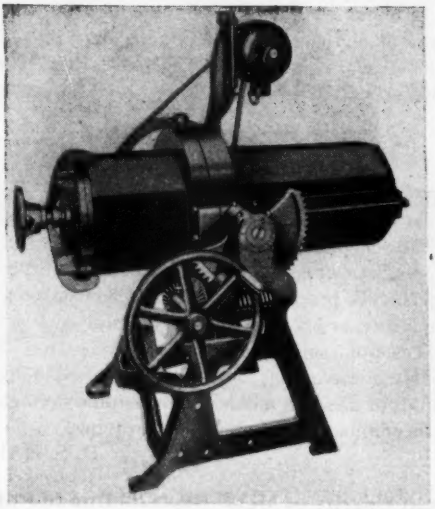

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Please mention THE MONTHLY REVIEW *when writing*

The Abstract Section

FREDERICK FULFORTH, *Chairman, Program and Educational Committee*

Electrogalvanizing Iron. By S. KHELIMSKAYA. *Optiko-Mekhan. Prom.*, **1938,** No. 1, 21-3; *Khim. Referat Zhur.*, **1,** No. 7, 55 (1938). After the iron was prepared for plating, the dependence of the quality of the deposit on electrolyte composition, current density, bath temperature, etc., was determined. Acid electrolytes (pH 3.6-3.8) are to be preferred to cyanide electrolytes. Chlorides in the acid bath give excessive anode dissolution. Zinc was deposited in coarse, dark, opaque, crystals. The addition of colloids (malt extract) improved the quality. The amount of colloid and the c.d. were varied while the composition of the solution was kept constant. Best results were obtained from the solution: $ZnSO_4$ 300g., $MgSO_4$ 50 g., H_3BO_3 10 g., malt extract 20 cc., water 1 l.

W. R. HENN
Chemical Abstracts **33,** 6166 (1939).

Electroforming with Iron, *Chemical & Metallurgical Engineering*, October 1939, Page 623. The Ekko process is a new method for the preparation of molds and dies by the electrodeposition of iron. The method described was developed by the United States Rubber Company for the express purpose of reproducing expensive tire molds. The process is identical to electroplating except that the deposit used is as heavy as 1/2 inch thick. When it is desirable to duplicate a mold a pattern is cast of a suitable material and iron plated. The same method applies if only a pattern is available. This process is used in duplicating and for making various kinds of dies and molds. Considerable savings may be realized on some dies by the elimination of extensive engraving.

D. S. HARTSHORN, JR.

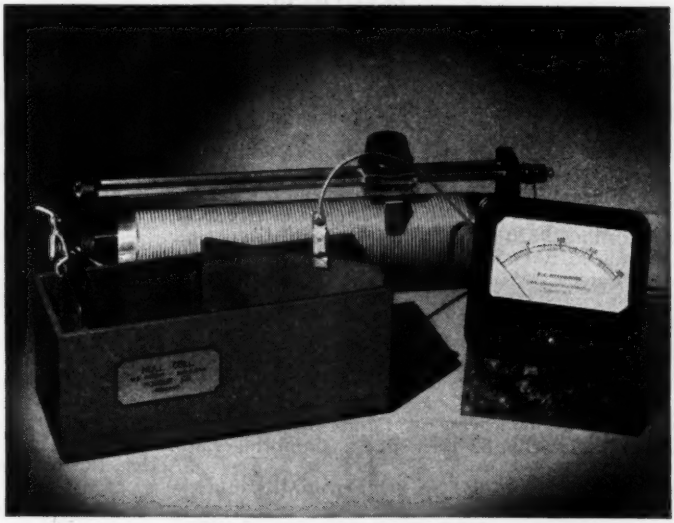
Improvement in Quality of Metal Deposits Due to Rotation of Cathode Applies Likewise to Metal Deposits by "Displacement." By ROBERTO PIONTELLI. *Trans. Electrochemical Society* **77,** (Preprint 7) (1939). After a detailed discussion of the various factors which influence the structure of electrodeposits, the formation of sponge deposits, and the improvement obtained by rotating the cathode, these principles are applied to deposition by displacement or immersion. Excellent deposits of silver, copper, lead, thallium, and cadmium were obtained on zinc rods by rotating them at 5000 r.p.m. (peripherial speed 5.9 ft./sec.), although without rotation these deposits are spongy. ERNEST H. LYONS, JR.

The Presence of Metallic Magnesium in Nickel Deposited by Electrolysis. By A. A. BULAKH. *Korroziya i Bor'ba s Nei* **4,** No. 2, 164-6 (1938) *Khim. Referat. Zhur.* **1,** No. 11-12, 104; *Chemical Abstracts* **33,** 9149 (1939). Contrary to published claims that magnesium is codeposited with nickel from baths containing added magnesium sulfate, no trace of magnesium could be detected in the deposits. ERNEST H. LYONS, JR.

ANNOUNCING

THE

HULL CELL



HULL CELL U. S. PATENT NO. 2,149,344

A PRACTICAL METHOD FOR THE CONTROL AND DEVELOPMENT OF ALL TYPES OF ELECTROPLATING SOLUTIONS. DETERMINES BEST CURRENT DENSITY.

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. . . PIONEERS IN TESTING SETS FOR ELECTROPLATERS . . .

Membership Report

To January 1, 1940

ELECTIONS

Bernard John Kubrak, 13815 Southview Ave., Cleveland, O.
Associate, Cleveland Branch

Julius Teres, U. S. Army Air Corps, Wright Field, Dayton, O.
Associate, Dayton Branch

Willam F. Whitty, c/o Wallingford Steel Co., Wallingford, Conn.
Associate, Waterbury Branch

Knute Nelson, 1022 Norman St., Bridgeport, Conn.
Active, Bridgeport Branch

Frank A. Singer, 357 Bishop Ave., Bridgeport, Conn.
Associate, Bridgeport Branch

E. S. Schmeling, 9820 Prospect St., Chicago, Ill. Chicago Branch

J. R. Guminski, 3411 So. May St., Chicago, Ill. Chicago Branch

Lloyd H. Larsen, 1611 Carnelia Ave., Chicago, Ill. Active, Chicago Branch

A. J. Pochowicz, 2313 So. Troy St., Chicago, Ill. Active, Chicago Branch

Carlton Germaine, 225 So. Central Ave., Chicago, Ill.
Active, Chicago Branch

Joseph R. Hughes, 198 Rock Island Rd., Quincy, Mass.
Associate, Boston Branch

Bruce E. Warner, Y. M. C. A., Worcester, Mass. Active, Boston Branch

Leslie E. Guilford, 68 Cherry St., Cambridge, Mass. Active, Boston Branch

Raymond A. Gosselin, 32 Tremont St., Cambridge, Mass.
Active, Boston Branch

Hamilton A. Pinkalla, 3041 So. 9th Place, Milwaukee, Wis.
Associate, Milwaukee Branch

Raymond R. Goodsell, 725 Lathrop Ave., Racine, Wis.
Associate, Milwaukee Branch

Ervin E. Boettcher, Racine, Wis. Associate, Milwaukee Branch

Harry E. Moser, 4310 Eastway, Toledo, Ohio Active, Toledo Branch

George Perkins, School of Chem. & Met. Eng. Purdue University, Lafayette, Ind. Associate, Detroit Branch

Robert Bray, 905 Stephens St., Duncan, Okla. Associate, St. Louis Branch

Chas. A. Schmidt, 3112 Whittier St., St. Louis, Mo.
Associate, St. Louis Branch

APPLICATIONS

Joseph J. Duffy, Jr., 1000 Widner Bldg., Philadelphia, Pa.
Associate, Rochester Branch

Louis Piovarcy, 1029 Pembrook Rd., Cleveland Heights, Ohio
Active, Cleveland Branch

William Keating, 527½ 9th St. N.E., Washington, D. C.
Active, Baltimore-Washington Branch

August F. Sachs, Bur. of Engraving & Print., Washington, D. C.
Associate, Baltimore-Washington Branch

Willard A. Edwards, 4217 Sanner Ave., Baltimore, Md.
Associate, Baltimore-Washington Branch

Raymond Stricklen, Jr., 4016 Frankford Ave., Baltimore, Md.
Associate, Baltimore-Washington Branch

Ralph M. Sasso, 366 Central Ave., New Haven, Conn.
Associate, Baltimore-Washington Branch

WYANDOTTE AIMS AT CLEANING-COST REDUCTION

For more than a third of a century Wyandotte has been manufacturing superior metal cleaning compounds. And from the very beginning our aim has been to provide you with the most efficient metal cleaning for every dollar you spend.

Because of our research, in the laboratory and in the field — Wyandotte quality is higher than ever before. The result is that the cost of using Wyandotte is lower.

Along with Wyandotte products goes Wyandotte service — trained metal cleaning specialists are ready to put their time and experience at your disposal without obligation.

The Wyandotte Service Representative in your district will call on you at your request and help you save time, money and trouble in 1940.

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WYANDOTTE MICHIGAN

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Always ready to use, for all kinds of polishing, of any metal, on any type of wheel, in hot or zero weather.

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Thomas Murdoch, Kilsyth, Stirlingshire Scotland
Active, Springfield Branch
Carl A. Kilborn, 233 Circular Ave., Waterbury, Conn.
Active, Waterbury Branch
Charles A. Mosgrove, 37 Windsor St., Waterbury, Conn.
Associate, Waterbury Branch
Peter J. Gagnon, 429 So. Main St., Waterbury, Conn.
Associate, Waterbury Branch
Anthony J. Schullo, Hall-Mack Co., Los Angeles, Calif.
Active, Los Angeles Branch
Harold Galvin, 309 East Delavan Ave., Buffalo, N. Y.
Active, Buffalo Branch
Hamilton A. Pinkalla, 3041 So. 9th Place, Milwaukee, Wis.
Associate, Milwaukee Branch
Laurie Salerno, 1673 Irving St., Rahway, N. J. Associate, Newark Branch
Jack Templeton Leick, 2822 LaSalle St., St. Louis, Mo. St. Louis Branch
Rutherford M. Errington, 2822 Lasalle St., St. Louis, Mo. St. Louis Branch

SUSPENSIONS

Tom De-Christopher, 1001 Clay St., Toledo, Ohio Toledo Branch
William Ehmann, 1845 Champlain St., Toledo, Ohio Toledo Branch
Robert Hilfinger, 1617 Dorr St., Toledo, Ohio Toledo Branch
Herbert Willis, 5405 Edgewater Dr., Toledo, Ohio Toledo Branch
Edward Nolde, Naugatuck, Conn. Waterbury Branch
William Moriarty, 184 Lakeview Ave., Waterbury, Conn. Waterbury Branch

REINSTATEMENTS

E. W. Griese, 1638 No. Tripp Ave., Chicago, Ill. Chicago Branch
William Hodson, Jr., 7310 Woodward Ave., Detroit, Mich. Detroit Branch
C. Brubaker Philadelphia Branch

RESIGNATION

F. J. Strock, 39 So. Villa Ave., Villa Park, Ill. Chicago Branch

DEATH

J. Moyer Philadelphia Branch

Elections of Officers and Delegates

In order that branch officers and delegates may be elected before the Convention we call attention to the closing date of the fiscal year, April 30.

The names of the newly elected officers and delegates should be sent to us before June 1.

Robert R. Sizelove Becomes Technical Advisor to Frederick Gumm Chemical Company

Robert R. Sizelove, son of the late Oliver J. Sizelove, has been appointed technical advisor and sales representative of the Frederick Gumm Chemical Company, Kearny, N. J.

Mr. Sizelove is a chemical engineering graduate of the Newark College of Engineering and has worked with his father in the plating industry for twelve years.

Bob has been assistant technical advisor to Frederick Gumm Chemical Company for some time and he has a wide circle of friends in the electroplating industry.